SOAP AND CHEMICAL SPECIALTIES

SEPTEMBER 1960

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New combination car wash/wax liquid, "Wax-O" by Simoniz Co., Chicago, comes in 16 ounce round Continental steel can. Said to be first round can with captive cap it has overcap of polypropylene by Carol Ann Products.

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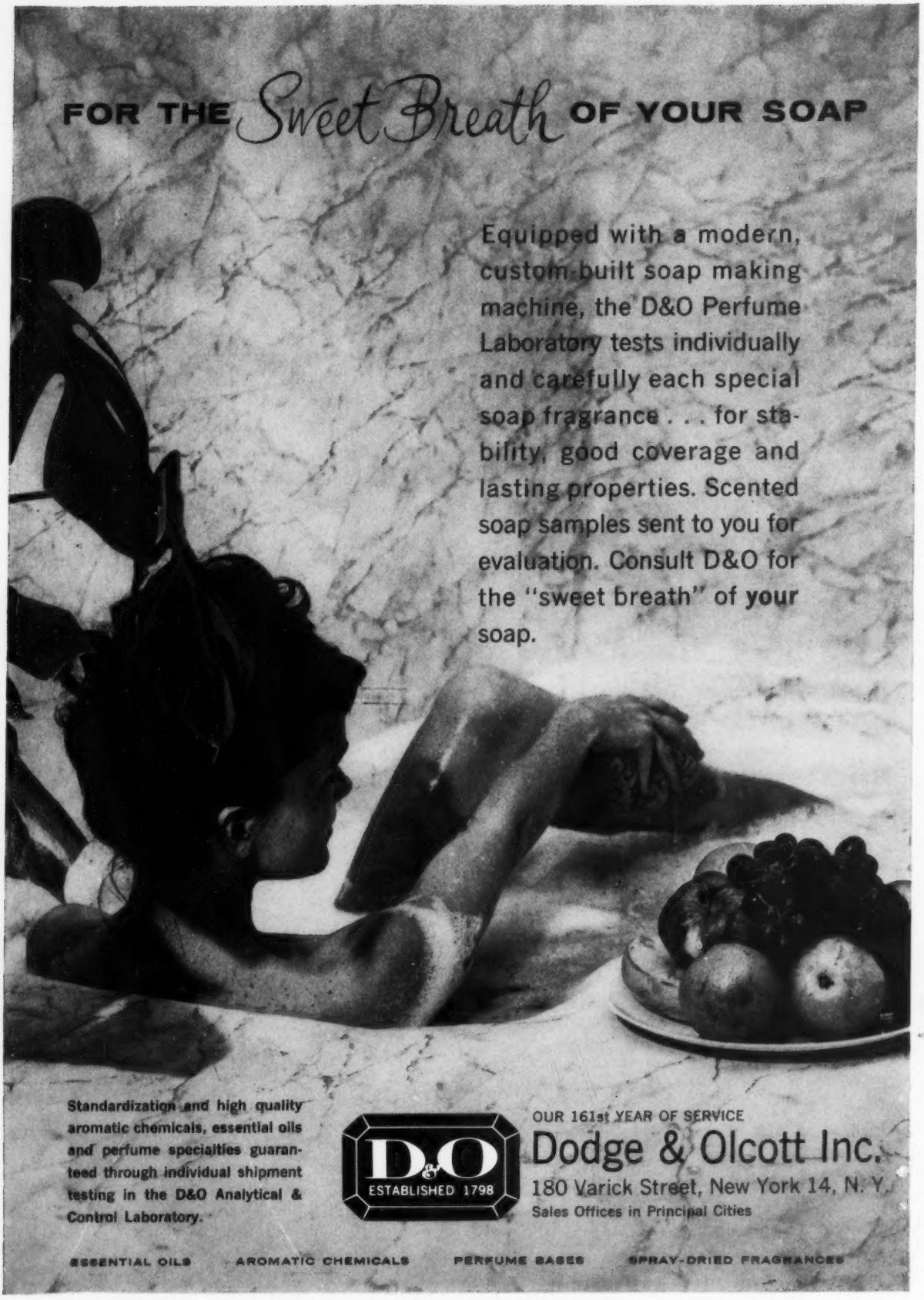
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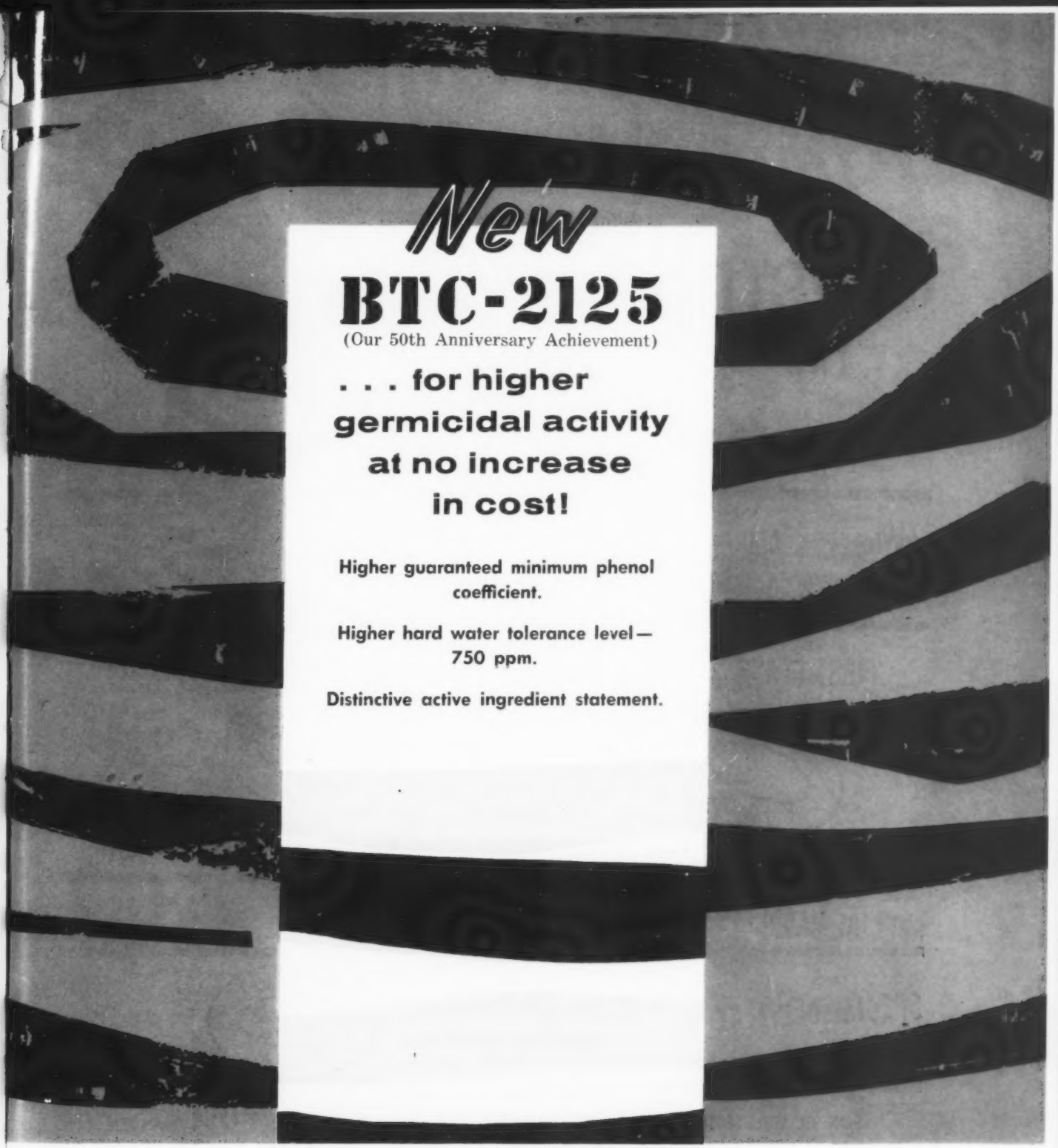
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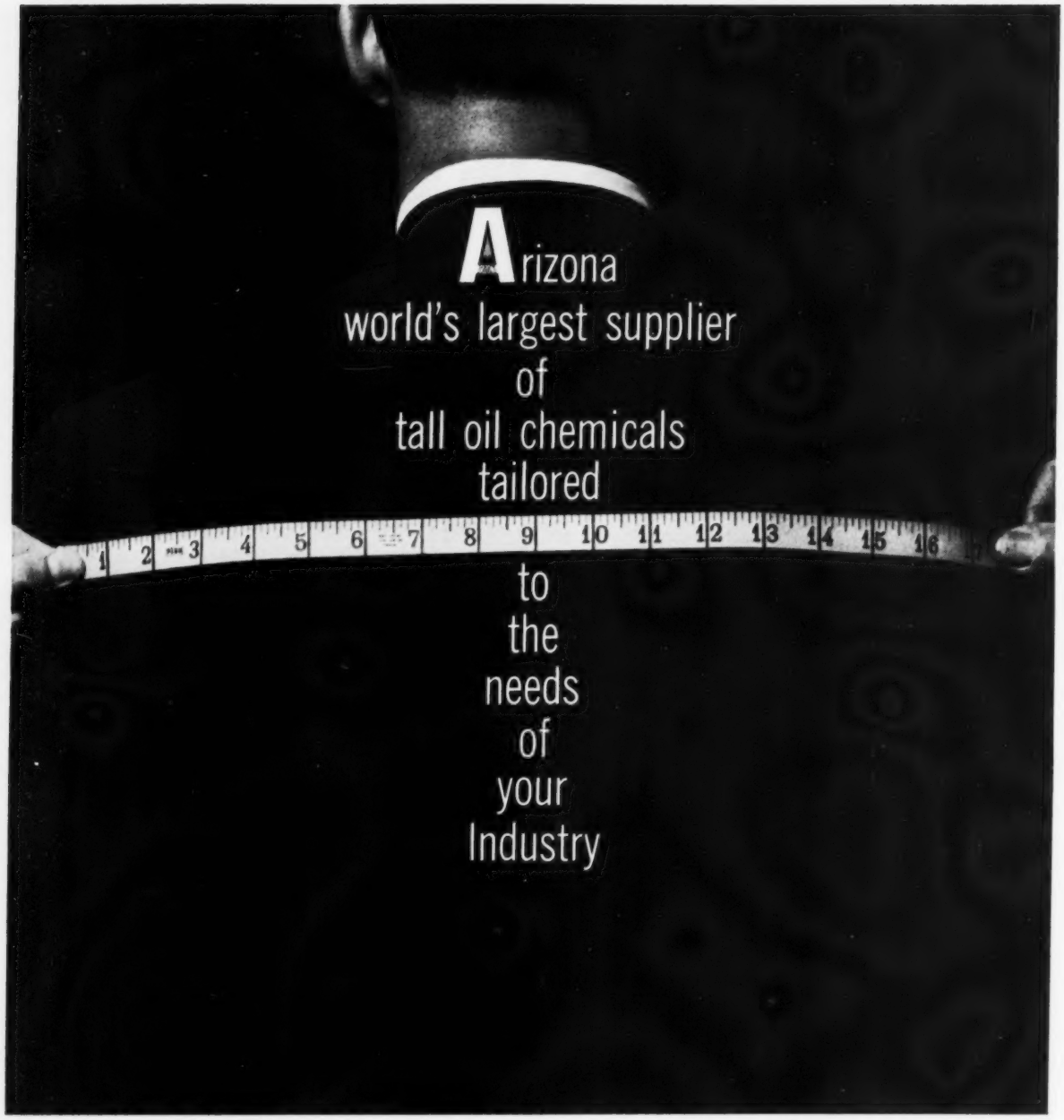

Soon to be in full production, the new Arizona plant in Springhill, Louisiana is designed to give Arizona even greater fractionating capacity. The new facility assures you faster service plus a continuous supply of the finest quality tall oil products. Arizona research is developing tall oil products perfectly suited to the needs of your industry . . . products to bring your operation greater efficiency and economy. This new plant is one more example of Arizona's constant effort to bring you the best in tall oil products and services.
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The Amidox L series are ethylene oxide condensates of lauric monoethanolamides. The Amidox C series are ethoxylated coconut fatty acid monoethanolamines.

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This is a new quaternary salt specially developed by ADM research chemists to produce a finer quality softener for commercial and home laundering. It is created through ADM's unique processing from highest purity fatty amines.

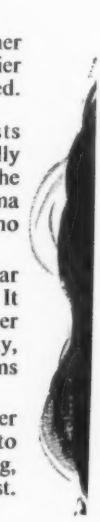
As a result, Adogen 442 is exceptionally free from objectionable odors, both in the bottle and on treated fabrics. Blindfold tests show Adogen 442 can help you cut back perfuming costs and lowers residual odor after use dramatically. Panel tests on odor showed Adogen 442 excellent for commercial softeners. Comments like musty, sour and stale were replaced by delighted references to clean and fresh.

Offers Whiter Color—Adogen 442 is an exceptionally white di-hydrogenated-tallow quaternary, sold as a 75% paste in alcohol and water. Its lighter color makes it ideal for even the finest grade softeners. Commercial batches of Adogen 442 run consistently Gardner 1 to 3. This gives fabric softeners a brighter, livelier color in the bottle, whether they are white or tinted.

Non-Irritating To Skin—Dermatological tests on albino rabbits reveal that Adogen 442 is essentially non-irritating to skin. In neither the primary nor the latent skin irritation tests were any significant erythema or edema formation detected. Adogen 442 has no cumulative toxic effects.

Water dispersible Adogen 442 is soluble in polar organic solvents and many of the non-polar type. It is also compatible with non-ionics as well as other cationic surfactants. To further protect its quality, Adogen 442 is delivered in epoxy-phenolic lined drums especially designed for ADM.

For further information on Adogen 442, or other ADM quaternary ammonium compounds, write to Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minn. Research samples on request.



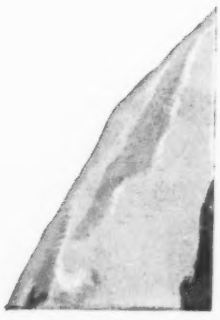
Industrial Bacteriostat News!

Exceptional solubility in saline or hard water available with NEW FURFURYL ADOGEN 446

Here are new savings and new performance even in hard water in industrial bacteriostats just developed by ADM research: ADM furfuryl Adogen 446. This low-cost furfuryl quaternary combines exceptional new solubility with germicidal effectiveness.

Striking performance in Chambers tests against *Staphyloccus aureus* in 500 ppm hard water shows Adogen 446's effectiveness against gram positive bacteria. The phenol coefficient of Adogen 446 compares favorably with benzyl quaternaries and cetyl pyridinium chloride. Solubility of up to 40 per cent in tap water and 20 per cent in brine helps preserve its sanitizing efficiency under adverse water conditions. Ask us for more facts about its exceptional performance.

Low cost and germicidal effectiveness combine to make Adogen 446 a promising ingredient for hotel and restaurant sanitizers, bottle washing, floor cleaners, and a variety of industrial germicides. The long fatty chains in the new furfuryl quat gives balanced conditioning properties which may be useful in hair rinses, textile specialties, and a host of other applications. Information and development samples may be had by writing Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minnesota.



Adogen 442

The Research Chemists' Corner

ADM and Atlas Powder Announce First Gas Chromatography For Primary Amines

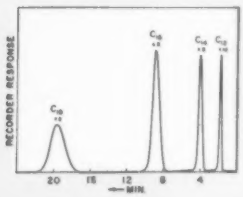
Not so long ago ADM broke the ice and revealed the first use of gas chromatography in routine production line analysis of fatty chemicals. A genuine milestone it represented in over 25 years of searching and researching for better ways of making chemicals.

But one thing had us stumped . . . try as we would, we just couldn't analyze amines because the peaks were asymetrical. But, today, things are different.

Eager beavers at our own and Atlas Powder Company's labs have jointly developed a method to make a gas chromatographic analysis directly on a primary amine. Unless you have tried and failed in this attempt, you'll probably never really appreciate how proud this moment is, even though we can't yet touch secondaries.

The method utilizes a column containing a non-polar liquid substrate on a Chromosorb W solid support which has been treated to reduce absorptivity. Relative sensitivity factors, determined for pure amines, are used to correct peaks during analysis. It works beautifully for the separation and analysis of primary fatty amines with chain length from 8 through 22.

Matter of fact, the improved color and higher purity of our new Adogens, like 442, is at least



indirectly a proud result of our growing skill in gas chromatography.

Add to this our world-wide ADM operations, which give use control of raw materials, and you see we have quite a favorable atmosphere for production and control of quality Chemifats . . . whatever their type.

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The lower-numbered compounds in the Hyonic PE Series are useful as emulsifiers and emulsifier components. Hyonic PE 30 finds extensive use as a defoamer.

The middle range of Hyonic PE compounds (PE 70-100) are all-purpose products with superior detergent, rapid wetting, and high foaming characteristics. Hyonic PE 70, a low-foaming compound, is widely used in household and industrial detergents.

The higher-numbered compounds perform an essential function as wetting agents and high-foaming detergents when temperature is a factor. Their high solution cloud point contributes increased solubility and detergency at high temperatures and in more concentrated salt solutions. Used in dairy detergents and milkstone remover, antiseptic sanitizer, paint and woodwork cleaners.

Nopco's complete line of surface-active chemicals enables manufacturers to place a single order for all their needs and at the same time to save through quantity discounts and lower shipping charges. Nopco chemists are ready to help tailor Hyonic PE compounds to your performance requirements. Write today for full information and literature.

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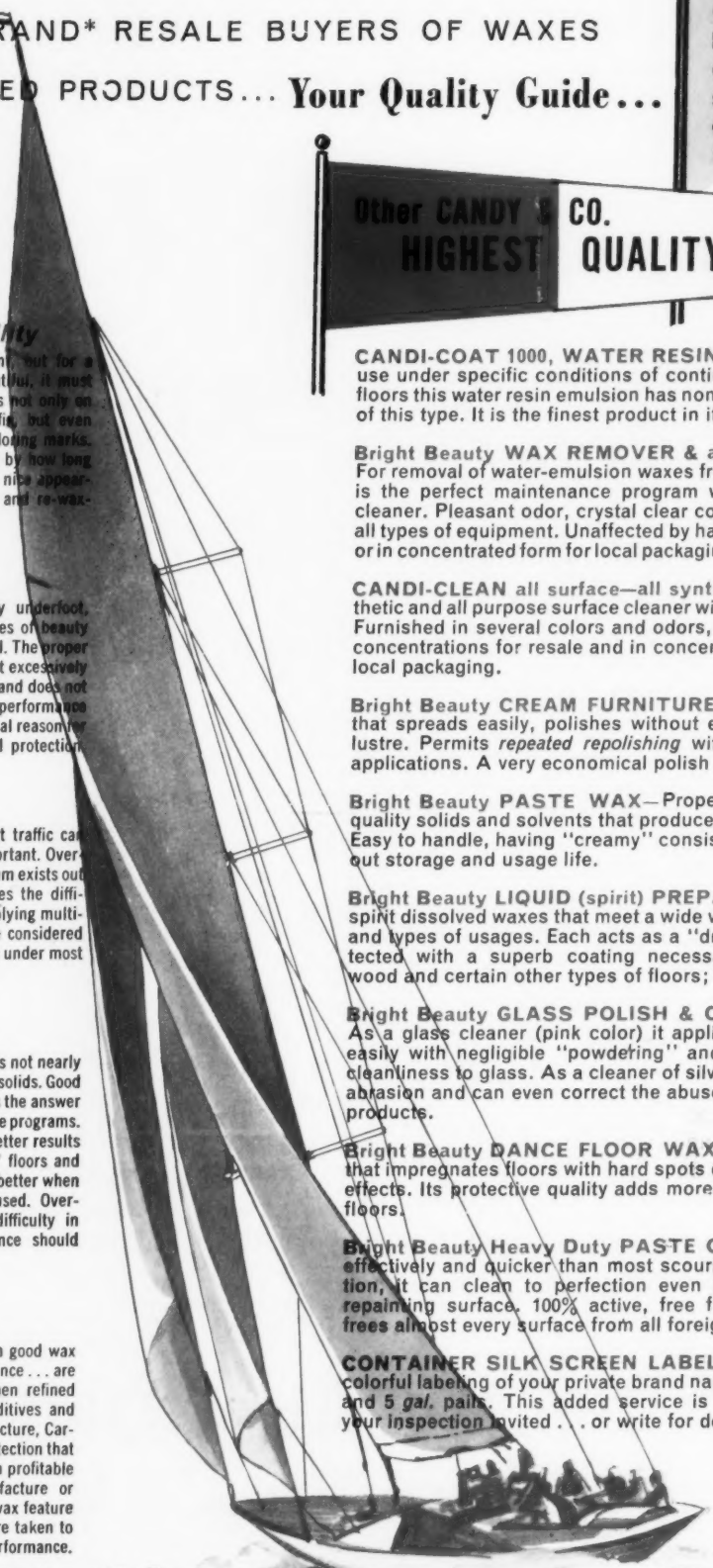

Beauty and Durability

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-Slip

Anti-slip, or reasonable safety underfoot, does not mean that the qualities of beauty and protection need be sacrificed. The proper balance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason for use of a floor wax—beauty and protection.

Water Resistance

Frequent damp mopping or wet traffic can make water resistance very important. Overdoing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

Solid Content

The percentage of solid content is not nearly as important as the **quality** of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Overwaxing and resultant greater difficulty in removal for periodic maintenance should be avoided.

Carnauba Wax

The most important features of a good wax ... all-around quality of performance ... are built around Carnauba Wax. When refined and compounded with other additives and scientifically controlled in manufacture, Carnauba imparts the beauty and protection that makes the use of floor waxes both profitable and possible. Make-shift manufacture or over-emphasis on any one given wax feature should be avoided and proper care taken to provide for most satisfactory performance.

CANDI-COAT 1000, WATER RESIN EMULSION— As a floor coating for use under specific conditions of continued maintenance on certain types of floors this water resin emulsion has none of the faults associated with coatings of this type. It is the finest product in its class produced up to this time.

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CANDI-CLEAN all surface—all synthetic CLEANER— This is an all synthetic and all purpose surface cleaner with free rinse and free wipe off qualities. Furnished in several colors and odors, and properly priced. Available in two concentrations for resale and in concentrated form for dilution with water for local packaging.

Bright Beauty CREAM FURNITURE POLISH— A cream furniture polish that spreads easily, polishes without excessive effort to a deep impressive lustre. Permits *repeated repolishing* with a dry cloth, thus saving many reapplications. A very economical polish of the very highest quality.

Bright Beauty PASTE WAX— Properly blended and refined from excellent quality solids and solvents that produce the best drying time and evaporation. Easy to handle, having "creamy" consistency and stability that lasts throughout storage and usage life.

Bright Beauty LIQUID (spirit) PREPARED WAXES— A complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usages. Each acts as a "dry cleaner" to keep surfaces wax protected with a superb coating necessary for many applications such as wood and certain other types of floors; for bars, wallpaper, etc.

Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH— As a glass cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanliness to glass. As a cleaner of silver, it polishes to a high lustre *without* abrasion and can even correct the abuses of scratchy "quick-polish" inferior products.

Bright Beauty DANCE FLOOR WAX— Does not "ball-up" and gather dirt that impregnates floors with hard spots difficult to remove ... free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom floors.

Bright Beauty Heavy Duty PASTE CLEANER— *Cleans* and *scours* more effectively and quicker than most scouring powders. Depending on application, it can clean to perfection even painted walls to provide a suitable repainting surface. 100% active, free from excessive abrasive qualities, it frees almost every surface from all foreign matter.

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Granular 30/60 (Special Mesh)	+ 30 + 60	0.5% 69.8%	+ 30 +100	max. 1% min. 80%
Granular 30/70 (Special Mesh)	+ 30 + 70	0.3% 71.0%	+ 30 + 40	max. 1% max. 20%
Granular 30/80 (Special Mesh)	+ 30 + 80	0.8% 76.6%	+ 30	max. 1%
Granular 30/100 (Special Mesh)	+ 30 +100	Nil 86.7%	+ 35 +100	none min. 85%
Granular 40/100 (Special Mesh)	+ 40 +100	Nil 89.0%	+ 40 +100	max. 0.5% min. 88%
Granular 40/140 (Special Mesh)	+ 40 +140	0.1% 88.8%	+ 35 +100	none min. 50%
Granular 40/200 (Special Mesh)	+ 40 +200	0.1% 84.1%	+ 30	none
Granular 60/200 (Special Mesh)	+ 60 +200	0.1% 66.7%	+ 60	max. 1%
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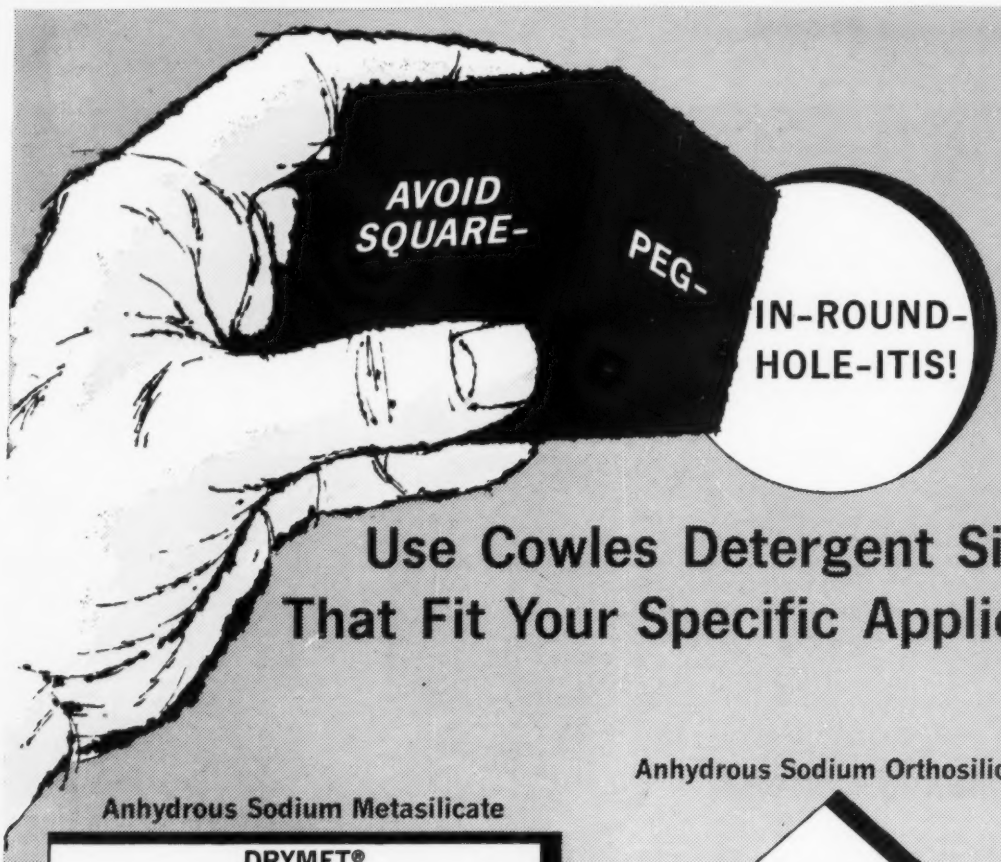

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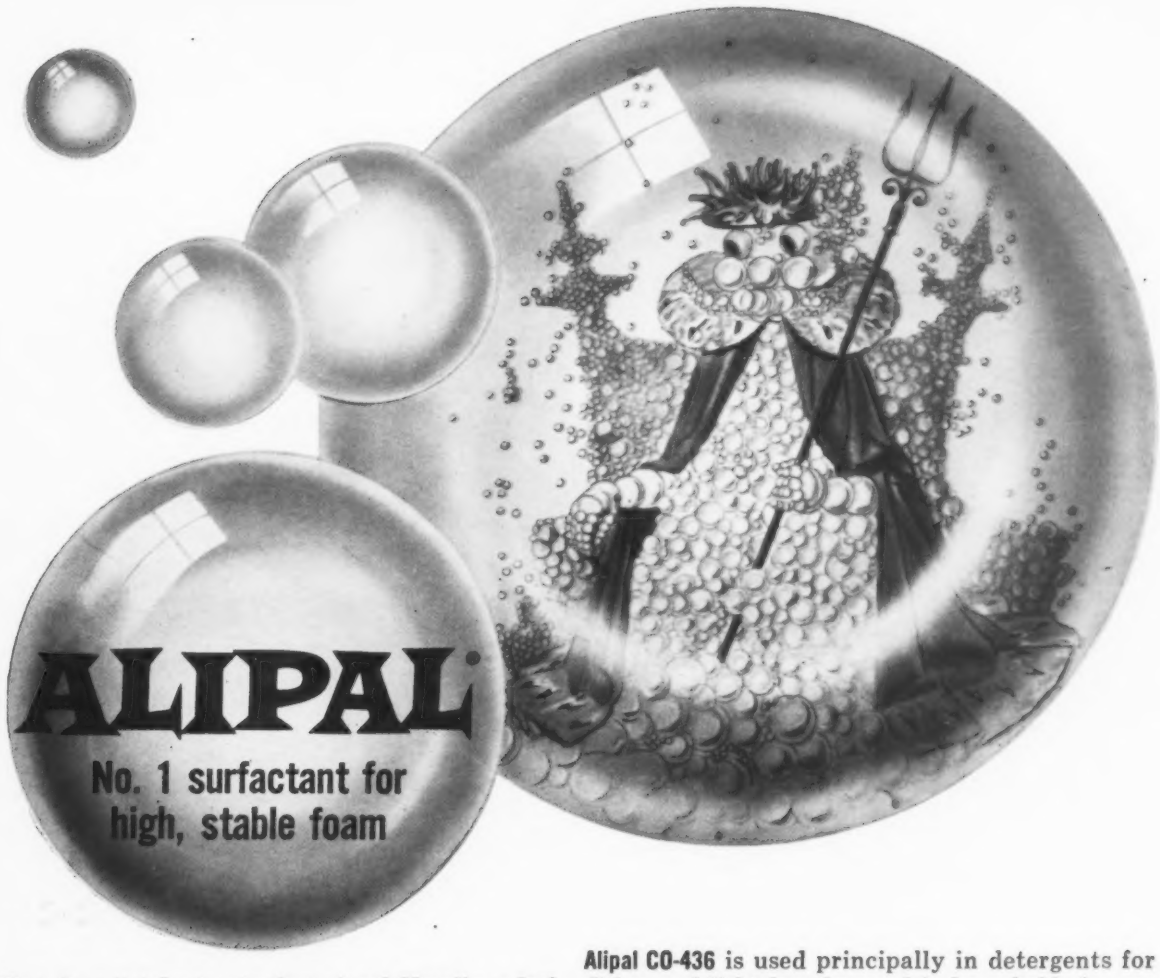

What does it take to win first place? Usually, a lot! And Alipal anionic surfactants offer a lot to liquid detergents: good cleansing power, high wetting strength, easy emulsification, economical price – all in combination with high foaming ability. Alipal formulations are also distinguished by easy rinsing and improved drainage characteristics, mildness of odor and gentleness to the skin.

Alipal CO-433 is employed especially in industrial applications requiring stability to alkali. It is useful as an emulsifier for latex polymerizations and petroleum waxes, as a wetting agent in the processing of textiles and of metals, an antistatic agent for plastic materials, and in other operations.

Alipal CO-436 is used principally in detergents for dishes and light laundry, and in household cleaners for rugs and hard, waxed surfaces. Also in bubble baths and hair shampoos.

Chemists must be able to rely on the complete standardization and purity of the components they use – and they can when the label reads "Antara"! Purchasing Departments, too, find Antara's product line attractive because it is so broad. You get extra convenience and economy when you supply all of your chemical needs from a single source. Shipments are made promptly from distribution points located nationally – by tank car, tank truck, drum or even smaller containers. Write or call any Antara office for samples, information, and technical assistance.

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add specific new functional properties to lanolin's most active components

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AMERCHOL L-101®—powerful *free-sterol* depressant of interfacial tension. Excellent auxiliary emulsifier. Adds gloss, soft textures, and superb emollience to formulations and imparts valuable moisturizing effects to the skin.

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Complete technical data, samples and suggested formulas are available from our research laboratories.

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ACETULAN™—*acetylated lanolin alcohols.* Non-oily hydrophobic liquid emollient. Penetrates and lubricates leaving a persistent soft after-feel that is truly remarkable.

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VISCOLAN®—*dewaxed lanolin.* Supplies all the natural benefits of lanolin in intensified, convenient liquid form. Oil-soluble, low odor and color.

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AFTER CLOSING---

Monkman, Conkling in Top Airkem Posts

THE election of John A. Monkman as chairman of the board and chief executive officer and of Frank W. Conkling as president,

John A. Monkman

Frank W. Conkling

was announced Aug. 30 by Airkem, Inc., New York chemical specialties firm specializing in odor control products. These positions were previously held by William H. Wheeler, founder of Airkem, who died July 23.

Vice-president and treasurer since 1947, Mr. Monkman continues to hold the latter office. He is an accountant by profession, and was retained by Airkem as a consultant in 1943, soon after the firm's founding. He was elected to the company's board of directors and became its controller in that year.

The new president of Airkem, Frank W. Conkling, joined the firm as a field salesman after his discharge from the U. S. Army at the end of World War II. In 1948 he started the Smoke Odor Service and decontamination service and became its manager. He was elected to the board of directors in 1953. Mr. Conkling has served as manager of new product development, director of research, and director of distributor sales. Since 1955 he has been vice-president in charge of sales in the Western Hemisphere. Mr. Conkling holds a B.S. degree in chemistry from the University of Chattanooga and did graduate work at the University of Vermont. He has been with Airkem continuously since 1946 except for one year during the Korean War when he was recalled to active duty. He is 40 years old.

Airkem has executive offices and experimental laboratories in New York, and plants in New York and Chicago. It operates seven subsidiaries in western Europe, one in Canada and one in Australia. Airkem's household deodorizer, "airwick," is distributed in the United States and Canada by Lever Brothers.

—★—

Tobey Joins Bruce

E. L. Bruce Co., Memphis, Tenn., manufacturer of floor care products, announced last month appointment of Henry M. Tobey as director of research. In his new post Mr. Tobey will head Bruce's chemical laboratory which is engaged in research concerned with floor finishing and maintenance products, wood treatment, termite control, and related problems. Bruce sponsors a nation wide termite control organization, named "Terminix."

Mr. Tobey comes to Bruce from Chapman Chemical Co., Memphis, where he served as technical director. Previously he had been affiliated with Dow Chemical Co., Midland, Mich., for seven years, two of which he spent in research and five in development work.

—★—

Lever Engineer Dies

Herbert F. Hinners, 49, a chemical engineer for Lever Brothers Co., N. Y., died of a heart attack Aug. 29 while on a business trip to Chicago. Mr. Hinners had been with Lever Brothers since 1936.

—★—

Oakite Advances Two

J. Justin Basch has been elected second vice-president and William A. Baltzell vice-president of Oakite Products, Inc., New York manufacturers of specialized chemical compounds, it was announced late last month.

Mr. Basch joined Oakite in 1925. He became Philadelphia division manager in 1930, and has been vice-president in charge of marketing since 1958. He continues to be responsible for the company's marketing, research, and product development programs.

Mr. Baltzell has been with the company since 1941, first as a sales representative in Dallas, then as manager of Oakite's southern division. In 1958 he was made industrial sales manager, a post in which he continues.

—★—

ACS Honors Soaper

Dennis I. Duveen, head of the Duveen Soap Corp., Long Island City, N. Y., will receive the 1960 Dexter Chemical Corporation Award in the History of Chemistry at the 138th national meeting of the American Chemical Society in New York in September. The

award, consisting of $500 and a plaque, is sponsored by the Division of the History of Chemistry of the ACS.

Noted as an expert on Antoine Lavoisier of France, the father of modern chemistry, Mr. Duveen has published almost 100 papers and books, most of them on chemical history. Two of his books, "Bibliotheca Alchemica Et Chemica" and "A Bibliography of the works of Antoine Laurent Lavoisier," have become standard reference works.

—★—

Zep Opens Northeast Plant

Zep Manufacturing Corp., Atlanta, opened a northeastern division on September 1 in Newark, N. J. The new division serves Zep customers in New York, Pennsylvania, Delaware, Maryland, New Jersey, and New England.

The industrial chemicals manufacturing concern also maintains facilities in Cleveland, Dallas, and Atlanta.

—★—

Tex-Ite Expands Facilities

Expansion of its production and research facilities at 859 E. 43rd St. was announced last month by Tex-Ite Products Corp., Brooklyn, N. Y. According to Arthur Kaye, president of the contract packaging and private label manufacturing firm, a full line of packaging and filling equipment for liquids and powders has been installed recently. The new equipment can fill powdered products in container sizes of from one ounce up, and from four ounces up for liquids. An additional 5,000 square feet of warehousing space has been added to Tex-Ite's facilities.

Enlarged facilities for research and development have also been set up by Tex-Ite. These are under the direction of Alfred M. Gordon, Ph.D., vice-president in charge of research and production for the firm. Dr. Gordon, who holds a doctorate in chemistry, was assistant research director of Felton Chemical Co., Brooklyn, for about three years before he joined Tex-Ite, earlier this year.

AOCS to Study Synthetic Detergents

SYNTHETIC detergents and soap will be the subject of one of the seven sessions scheduled for the 34th fall meeting of the American Oil Chemists' Society, to be held at the Hotel New Yorker, New York, Oct. 17 throught 19. A total of 55 technical papers will be presented, acording to W. C. Ault, Eastern Regional Research Laboratories, U. S. D. A., Philadelphia. An attendance of 800 is expected by general chairman of the meeting, D. S. Bolley of Baker Castor Oil Co., and co-chairman Edward A. Lawrence, manager-chemical research for Colgate-Palmolive Co., Jersey City, N. J.

The detergents session scheduled for Tuesday morning, Oct. 18, will hear the following contributions:

"Analysis of Mixtures of Ionic and Nonionic Surface Active Agents, Separation and Recovery of Components by Batch Ion Exchange," by Milton J. Rosen, Brooklyn College, Brooklyn, N. Y.;

"Cryoscopic Forces and Detergency," by Lloyd I. Osipow and Foster Dee Snell, Foster D. Snell, Inc., New York.

"The alpha-Sulfonation of Pelargonic, Stearic, and Substituted Stearic Acids," by J. K. Weil, A. J. Stirton, R. O. Bistline, Jr., and W. C. Ault, Eastern Regional Research Laboratory, Philadelphia.

"Removal of Soil from Glass by Surfactants and Surfactant-Builder Combinations," by J. C. Harris, R. M. Anderson, and J. Satanek of Monsanto Chemical Co., Dayton, O.;

"New Vacuum Drying and Plodding Processes for Toilet and Laundry Soaps," by John W. McCutcheon, John W. McCutcheon, Inc., New York.

Among numerous committee meetings will be a session of the Technical Safety Committee which will hear a talk by Thomas W. McCloud of W. B. McCloud & Co., industrial pest control, sanitation and fumigation specialists. His presentation will cover problems in working with government inspectors, housekeeping and sanitation. Three subcommittees will report on results of surveys they conducted on industrial housekeeping and sanitation.

The general session opening the meeting on Monday morning, Oct. 17, will hear Morris W. Sills of Eastern Regional Research Laboratory on "Trends in Industrial Markets for Fats and Oils Derivatives." At the same session Foster Dee Snell of Foster D. Snell Inc., New York, will present a report in his capacity as American representative on the International Fat and Oil Commission of the International Union of Pure and Applied Chemistry. "Proposals for a Verbal Abbreviation System of Nomenclature for Fatty Acids" will be the subject of a paper by L. J. Morris and F. D. Gunstone.

On Sunday evening, Oct 16, there will be the traditional mixer; a cocktail party will be given Monday, Oct. 17 by Distillation Products Industries and a dinner dance is scheduled for Tuesday evening, Oct. 18. A ladies program has been arranged providing sight seeing and entertainment.

—★—

Ed Bush Joins Verley

E. T. Bush, Jr., is now a member of the staff of Albert Verley & Co., Linden, N. J., processors of essential oils and aromatic chem-

E. T. Bush, Jr.

icals, according to an announcement made last month. He was formerly with Dragoco, Inc., New York.

—★—

Fifth Maintenance Show

A record attendance of 4,000 persons is forecast for the Fifth Annual Sanitation Maintenance Show and concurrent meetings to be held in Detroit, Oct. 25 through 27, at the Sheraton Cadillac Hotel. The event is sponsored by the Institute of Sanitation Management, the six divisions of which will discuss a wide range of subjects.

On Monday afternoon, Oct. 24 the Buildings Division will study: "Role of the Supervisor in the Building Sanitation Program"; "Measuring Cleanliness Objectively"; "What Have Work Standards to do with Building Management"; and "The Practical Side of Carpeting in Office Buildings."

Tuesday morning, Oct. 25, a joint session of the Buildings, Consultants, and Institutions Divisions will consider such subjects as "Selling Sanitation to Your Coworkers"; "Employee Training" and other topics of general sanitation interest.

There will be a special schools session on Thursday morning, Oct. 27 and a session of the Industrial Division. The Food Processing and Mill & Bakery Divisions will meet to discuss problems pertaining to their fields.

Program chairman is Raymond Q. Duke, of Detroit Edison Co. Information regarding exhibit space and tickets is available from Sanitation Management Shows, Inc., 19 West 44 St., New York.

Exhibitors include among others:

Abso-Clean Chemical Co., Detroit; Airkem, Inc., New York; All Clean Co., Detroit; C. B. Dolge Co., Westport, Conn.; Davies-Young Soap Co., Dayton, O.; Hadco Corp., Cleveland; Horizon Industries, Minneapolis; Huntington Laboratories, Inc., Huntington, Ind.; Walter G. Legge Co., New York; Multi-Clean Products, Inc., St. Paul, Minn.; Peerless Chemical Co., Detroit; Rochester Germicide Co., Rochester, N. Y.; West Chemical Products, Inc., Long Island City., N. Y.

P & G Profits Rise 20% Sales Increase 5%

A 20 per cent increase in profits and five per cent growth in sales were reported by Procter & Gamble Co., Cincinnati for the year ended June 30. Consolidated net sales by P&G and its subsidiaries in the fiscal year rose to a record volume of $1,441,548,293 from $1,368,532,426 in the previous year. Peak net earnings in the company's 123 year history were reported at $98,078,076 compared with last year's total of $81,697,965. Earnings per share of common stock were $4.73, compared with last year's $3.96. These figures are contained in the annual report issued in mid August by Neil McElroy, chairman, and Howard Morgens, president, who signed the report.

Dividends of $2.40 per share were paid on common stock during the fiscal year ended June 30, 1960; $2.10 per share were paid in the previous year. Present quarterly dividend is 65 cents per share or at the rate of $2.60 a year.

"Average prices for our products were lower in 1959-60 than they were in the preceding year. Thus our unit sales increased at a faster rate than dollar sales," Messrs. McElroy and Morgens point out.

Almost every branch of P & G's diversified business participated in the company's growth both in the United States and overseas. "This country's total consumption of cleaning products is increasing more than twice as fast as the population. Our own business—aided by the introduction of new products and the continuous improvement of established products – participated in this growth of the total market," the statement reports.

With the exception of Indonesia every one of P & G's overseas operations showed an increase in earnings. These include long established units in England, Canada, the Philippines, Switzerland and other parts of the world. More recently P & G has developed "fairly good" footholds in European Common Market countries such as France, Belgium and Italy. In June formation of a new company in Western Germany was announced.

—★—

New FMC Insecticide

"Dri-Die," a silica dust insecticide, is now available from Fairfield Chemicals, Food Machinery & Chemical Corp., New York. It is offered alone or in combination with Fairfield's "Pyrenone" insecticide base.

A white, finely powdered insecticide, "Dri-Die" is said to be odorless, lightweight, and nonstaining, and is claimed to effectively eliminate crawling insects by dehydration. A development of the Davidson Chemical Division of W. R. Grace and Co., Baltimore, Fairfield notes that "Dri-Die" is equally effective against resistant and non-resistant insects, is harmless to humans and warm-blooded animals when used as directed, and will not deteriorate.

The new product can be applied as a pressurized spray. In combination with "Pyrenone" an immediate effect is added to the residual one. It is said to be used by pest control operators against roaches, to protect wood structures against termites, and as an ingredient in pet powders. Control begins when "Dri-Die" makes contact with any parts of the insect's body.

—★—

NACA Program Set

Relationship of pesticides to public health and world health programs will be discussed by representatives of government, industry and academic institutions at 27th annual meeting of National Agricultural Chemicals Association to be held at del Coronado Hotel, Coronado, Calif., Sept. 27-29.

A panel discussion on public relations is set for Sept. 27. The annual golf tournament and banquet are scheduled for the 28th.

Preview of CSMA December Program

SOME details of the program for the 47th annual meeting of the Chemical Specialties Manufacturers Assn., to be held Dec. 5-9 at the Hollywood Beach Hotel, Hollywood, Fla., were revealed early this month.

Highlighting the meeting program will be a panel discussion of the newly enacted Federal Hazardous Substances Labeling Law. Dr. E. G. Klarmann, vice-president in charge of technical services of Lehn & Fink Products Corp., New York, will discuss toxicological and other technical aspects of the new law. The legal ramifications, including enforcement regulations, are to be discussed by a member of the legal staff of the Food and Drug Administration. FDA is responsible for the enforcement of the law. The third member of the panel, Robert J. Morse of the legal department of Boyle Midway Division of American Home Products Corp., New York, will discuss the law from the point of view of a chemical specialties manufacturer-marketer.

The general format for the 47th annual CSMA meeting departs somewhat from those of the usual two or three day convention held in a city. To conform with the requirements of a resort-type meeting, all formal discussion sessions will be held mornings. However, in order to provide ample time for these sessions their duration has been extended to 1:00 p.m. Starting time for the divisional meetings will be 9:00 a.m.

A general session from 11:00 a.m. to 1:00 p.m. is scheduled for Monday morning, Dec. 5. The 1960 aerosol package award winners will be announced at this time, and plaques will be presented to representatives of firms having winning products. The annual election of officers and directors will also take place at the first of two general sessions. A highlight of this session will be an address on a subject of general interest.

Prior to the Monday general session, the Board of Governors of CSMA will meet from 9:00 a.m. to 10:45 a.m.

Concurrent meetings of CSMA divisions get under way Tuesday morning, Dec. 6 at 9:00 a.m. At that time the following divisions will meet: Detergent and Cleaning Compounds, Insecticide, and Waxes and Floor Finishes. Scheduled to meet Wednesday morning, Dec. 7 at 9:00 a.m. are Aerosol Division, Automotive Division and Disinfectant and Sanitizers Division. The final day of the meeting, Thursday, Dec. 8, a general session is planned to begin at 10:45 a.m. This follows the second meeting of the Board of Governors, which starts at 9:00 a.m. and runs until 10:30 a.m. Tentatively scheduled for the second general session are reports of the CSMA's officers, as well as an address by a well-known speaker.

There will be no group luncheons as in former CSMA meetings, nor will there be an "Open House" evening, with suppliers entertaining in their suites. Instead, the evening of Tuesday, Dec. 6, will be "Suppliers' Night," with dancing, entertainment and souvenirs. Other social events are a "get-acquainted" party on Sunday evening, Dec. 4, and a "farewell party" Thursday evening, Dec. 8. At this affair prizes will be awarded to winners of various sports events.

Although the program at this writing is still tentative, several speakers have agreed definitely to appear on the program. Among them are W. D. McMaster of the chemical department of General Motors Corp. laboratory, Detroit. Mr. McMaster, who will speak at the Automotive Division session, has not yet announced his subject. Earl Brenn, president of Huntington Laboratories, Inc., Huntington, Ind., and chairman of the Waxes and Floor Finishes Division will speak before that group on the subject of "Product Certification of Chemical Specialties is Harmful." Also scheduled to present a paper at the Waxes and Floor Finishes Division meeting is Richard E. Zdanowski of Rohm & Haas Co., Philadelphia. He will discuss particle size and particle distribution in polymer emulsions.

The Detergent and Cleaning Compound Division is planning a seminar on "Packaging Household Products in Water Soluble Films." One participant will be W. J. Vogel, general manager, plastics division, Reynolds Metals Co., Richmond, Va. Robert K. Rigger of Wyandotte Chemicals Corp., Wyandotte, Mich., will be moderator for the panel.

The Disinfectant and Sanitizers Division has received an acceptance from Dr. Esther McCabe, director, Consumer Service Bureau of *Parents Magazine* to speak at its session.

Three subjects to be discussed during a meeting of the Insecticide Division include: "Role of Chemistry in the Administration of the Insecticide, Fungicide and Rodenticide Act," "Imported Fire Ant Control" or "Mediterranean Fly Control" and "Commerce Department Surveys." Speakers listed are, respectively, Thomas Harris, C. C. Fauche and Miss Jane Lewis.

Arrangements may be made to hold committee meetings on Sunday, Dec. 4, according to A. A. Mulliken, secretary of CSMA. On Sunday afternoon, the registration desk will be open from 3:00 p.m. to 6:00 p.m.

General program chairman for the meeting is Charles E. Allerdice, Jr., of Bell Co., Chicago, second vice-president of CSMA.

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Helps Travelers Aid

R. E. Horsey, vice-president in charge of sales of Givaudan-Delawanna, Inc., New York, accepted the appointment of chairman of the essential oils division of Travelers Aid Society of New York's 55th Annual Fund Drive, it was announced recently.

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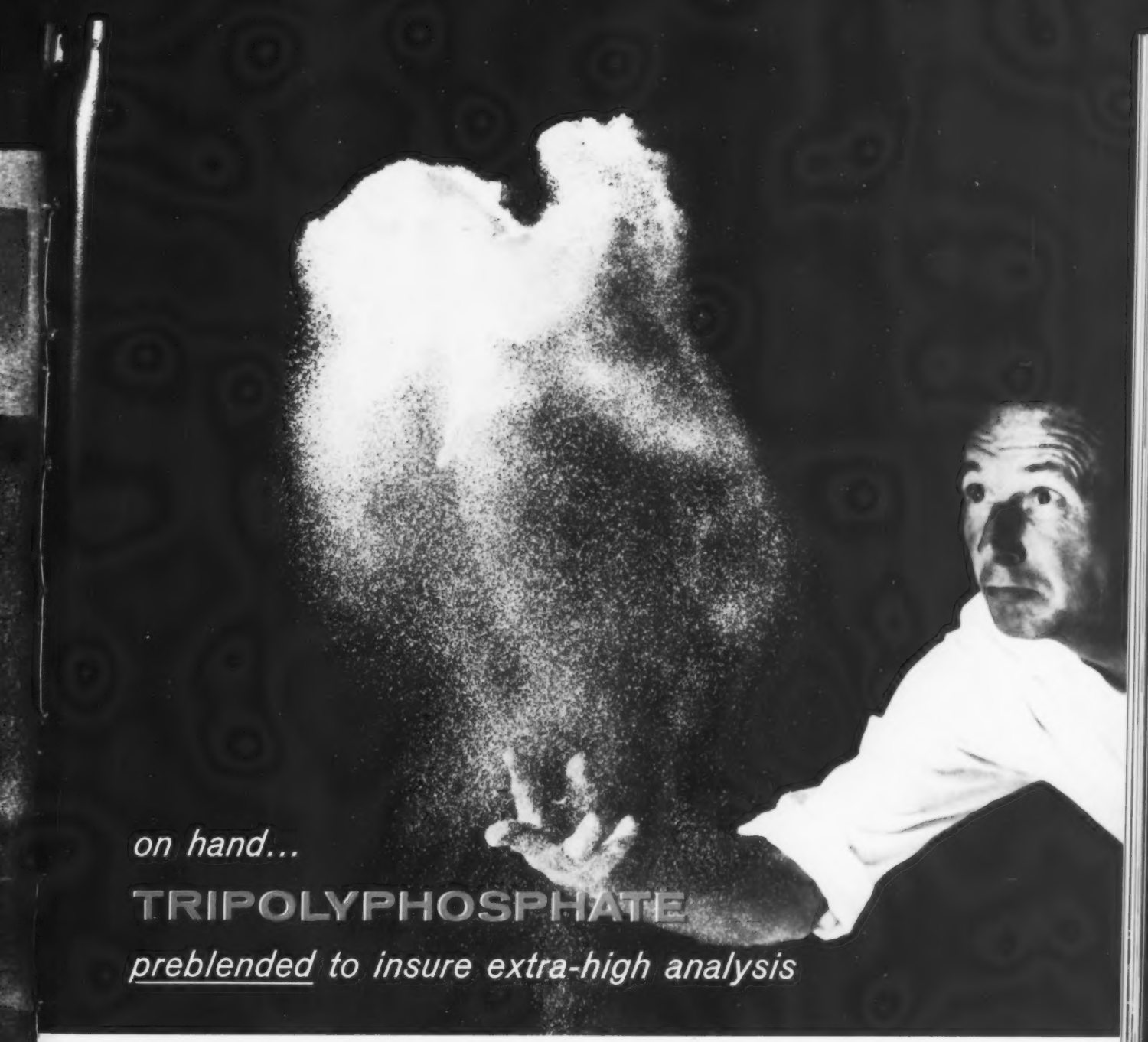

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You also benefit from a free-flowing uniformity. It comes from the careful control built into thoroughly modern spray drying and calcining units. Send for production samples of this new "Tripoly" now!

Top detergent quality in every granule...

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- Pure Ethyl Alcohol — U.S.P. 190 proof and N.F. Absolute, tax-free and tax-paid.

You can order U.S.P. Absolute A.C.S., and Technical Refined grades from U.S.I. Shipments from the Tuscola, Ill. plant range from five-gallon drums to 8,000-gallon tankcars. Drums are stocked conveniently at U.S.I. warehouses across the nation.

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Metso basic silicates fit into your formulas. They mix harmoniously with synthetic detergents, soaps, phosphates, carbonate, wetting agents, etc. There is a Metso for every one of your cleaning formulations for light or heavy duty service in metal cleaning (ferrous and non-ferrous), soaker tank, machine dishwashing, laundry compounds, bottle washing compounds, steam gun cleaners, liquid spray cleaners, floor cleaners, soap builders.

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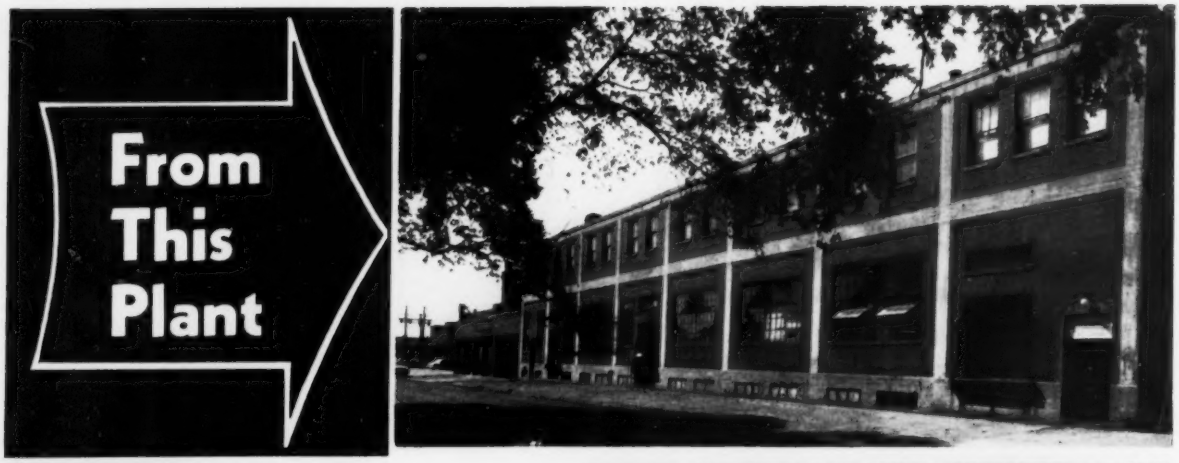

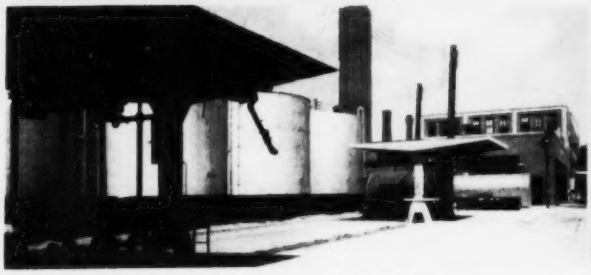

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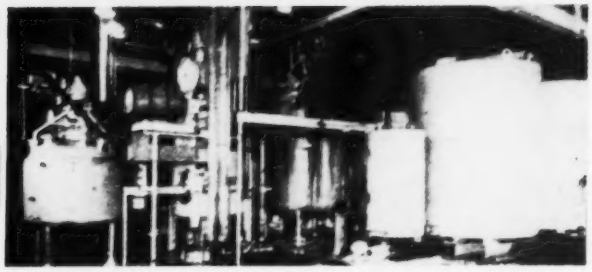

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Krystall stands ready to meet your detergent requirements

When it comes to filling your detergent requirements you can depend on the Krystall Chemical Co. With our efficient plant and modern laboratory plus an excellent technical staff we are ready and able to handle your surfactant needs.

Our plant has bulk storage for up to 600,000 gallons of raw materials and finished products including storage facilities for handling stabilized liquid Sulfur Trioxide. Warehouse space for over 2000 drums of finished materials, and 600 feet of railroad siding. Facilities for simultaneous loading and unloading of 10 trucks and 5 railroad cars.

Krystall Chemical Co., primarily a manufacturer of detergent intermediates also offers extensive compounding and packaging facilities. We have just installed another new, high speed automatic filling line for handling either plastic bottles or cans.

Our technical staff will welcome the opportunity to help with your production, formulation, product development and analysis. . . . What ever problem you may have write or call us today.

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KRYSTALLEX A—A sodium lauryl sulfate with a very low salt content and low viscosity.

KRYSTALLEX C—A sodium lauryl sulfate characterized by its high uniform viscosity—excellent base for creme shampoos.

KRYSTALLEX T—A triethanolamine lauryl sulfate with high activity, low cloud point, very light color and color stability.

KRYSTALLEX AM—An ammonium lauryl sulfate with low salt content.

KRYSTALLEX S 26—A new detergent manufactured for shampoo use.

KRYSTALLEX S-330, and KRYSTALLEX S-365—Purer forms of alcohol sulfates recommended especially for rug and upholstery cleaning.

KRYSTALLEX S—A conventional type of dodecylbenzene sulfonic acid.

KRYSTALLEX SX—A pure form of dodecylbenzene sulfonic acid.

KRYSTALLEX S-63—A specially purified sodium dodecylbenzene sulfonate. Clear and odorless liquid. Excellent base for all types of liquid detergents.

KRYSTALLEX S-75—An ammonium alkyl phenoxyethylene sulfate.

KRYSTALLEX LX—Triethanolamine alkyl aryl sulfonate, 60% active.

KRYSTALLEX LA—A non-ionic fatty acid alkanolamide manufactured for use as a foam stabilizer.

KRYSTALLEX CD—A coconut fatty acid alkanolamide useful for thickening, etc.

KRYSTALLEX CDA—A modified coconut fatty acid alkanolamide used in floor cleaner concentrates. Has outstanding resistance to hard water.

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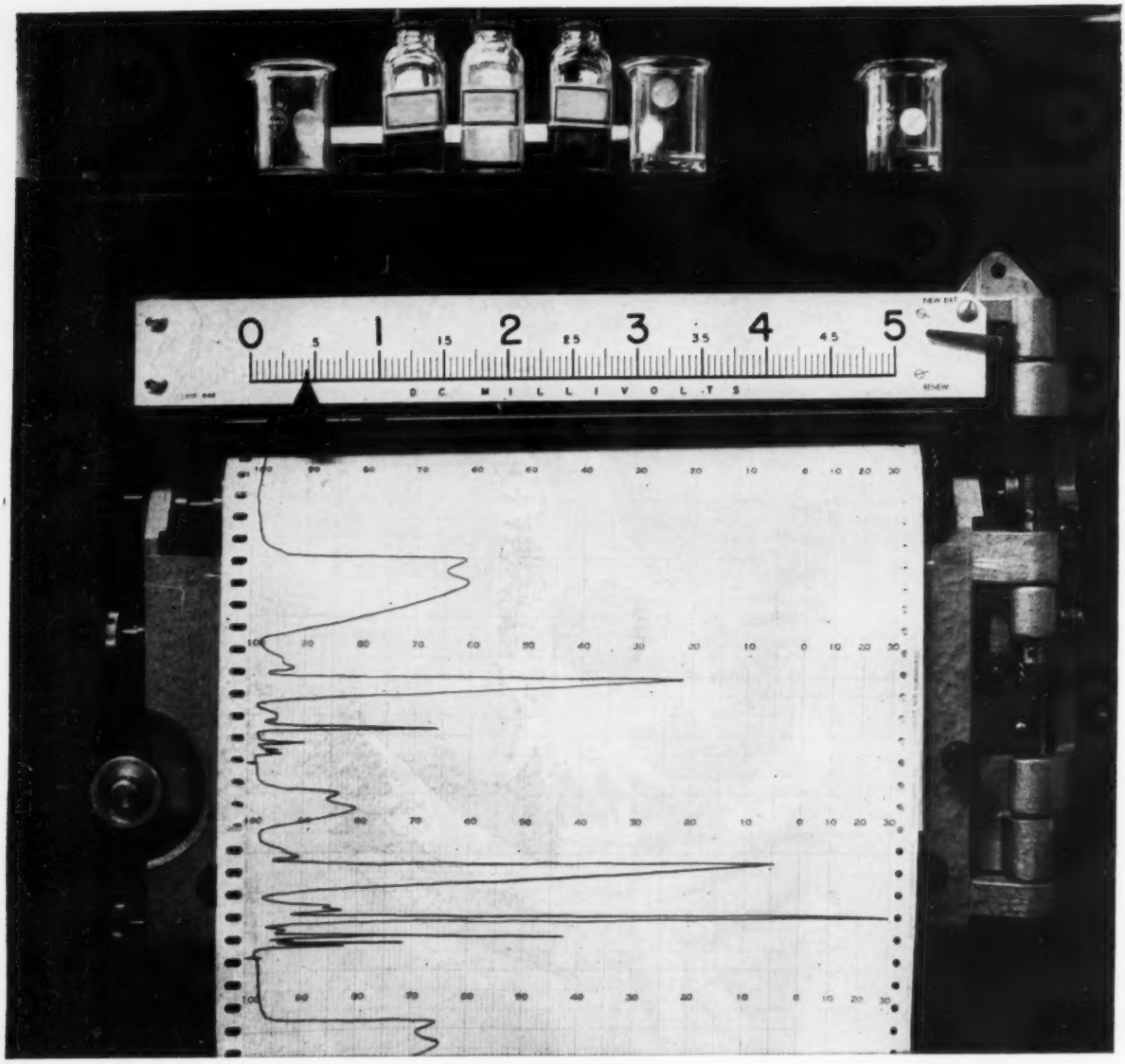

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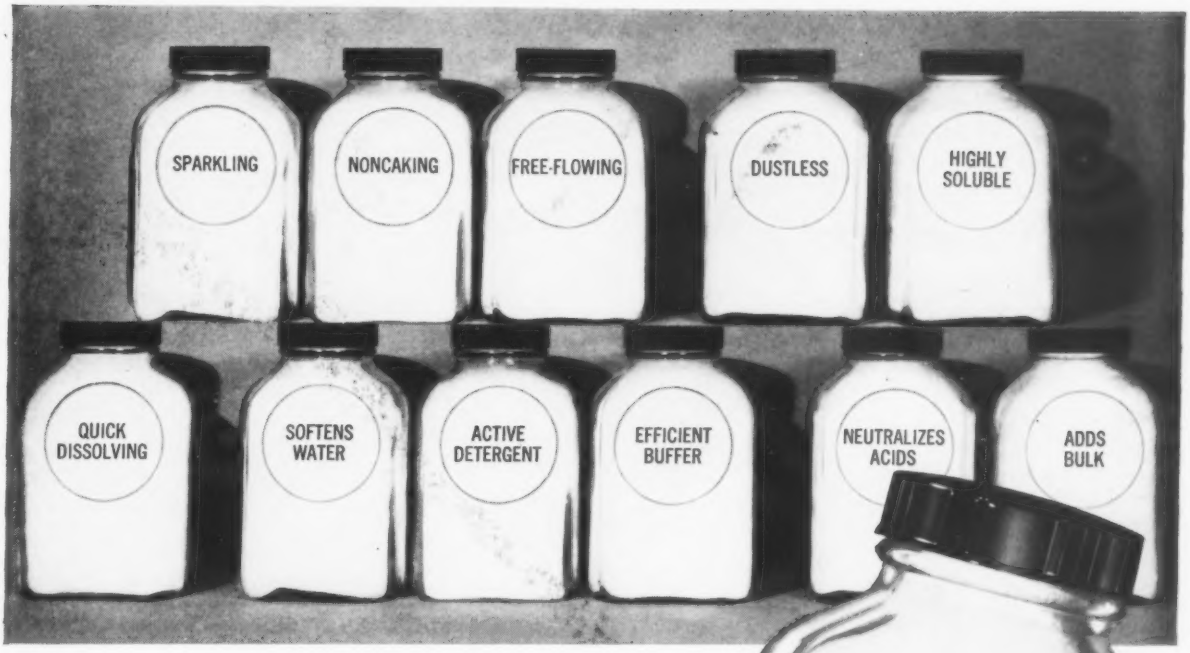

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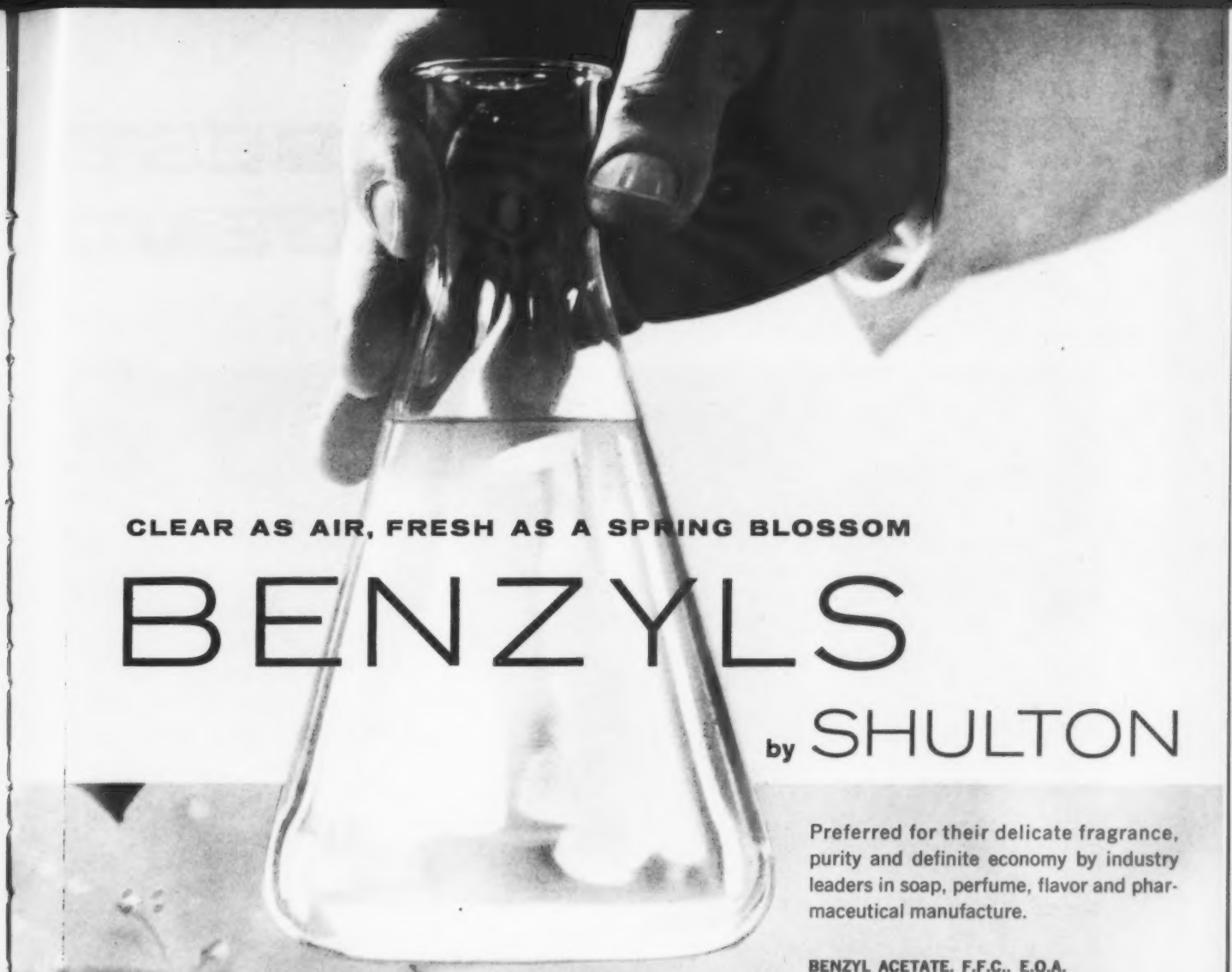

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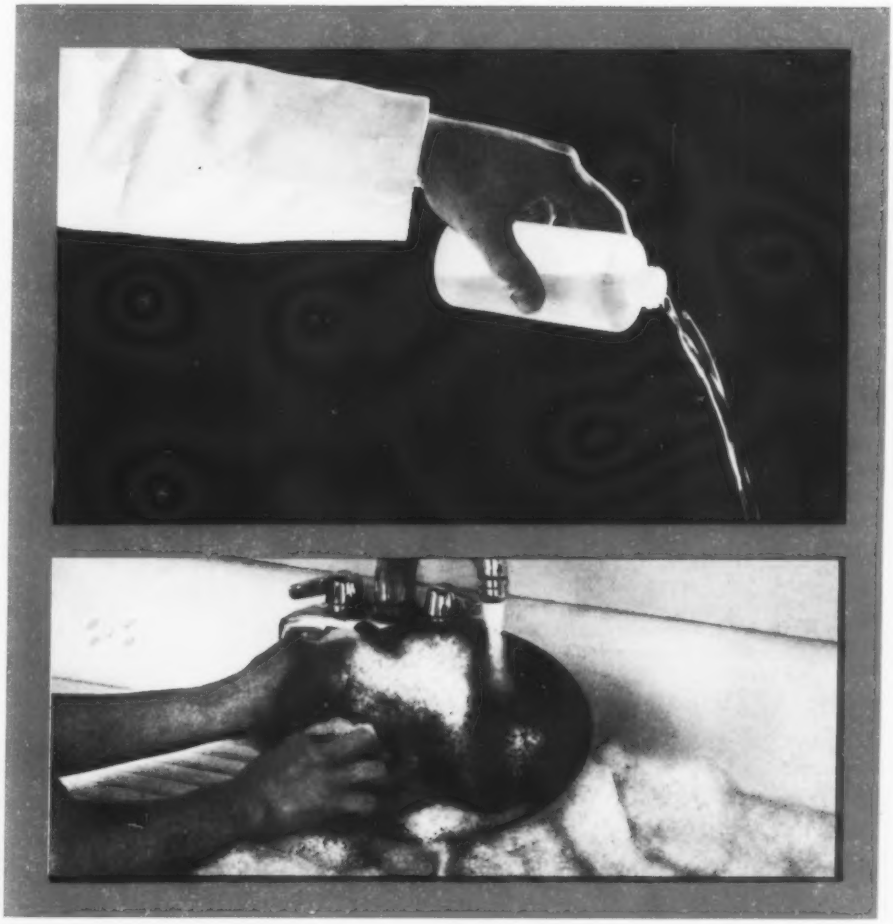

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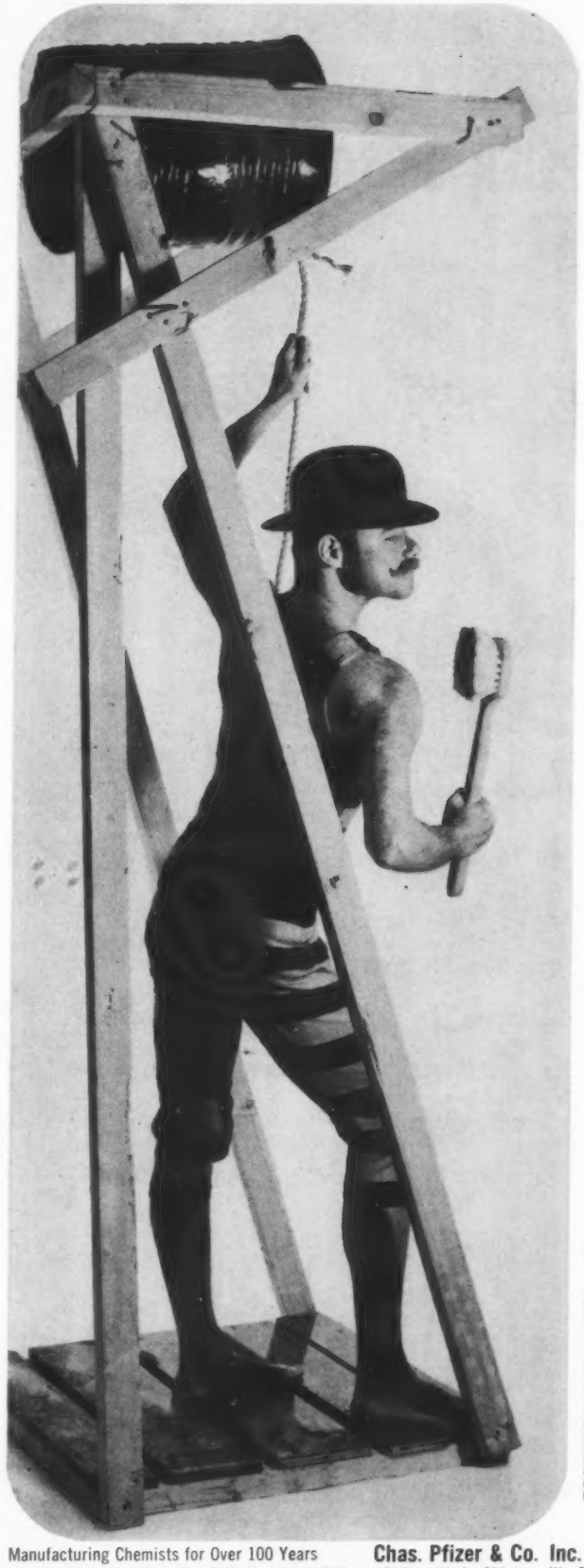

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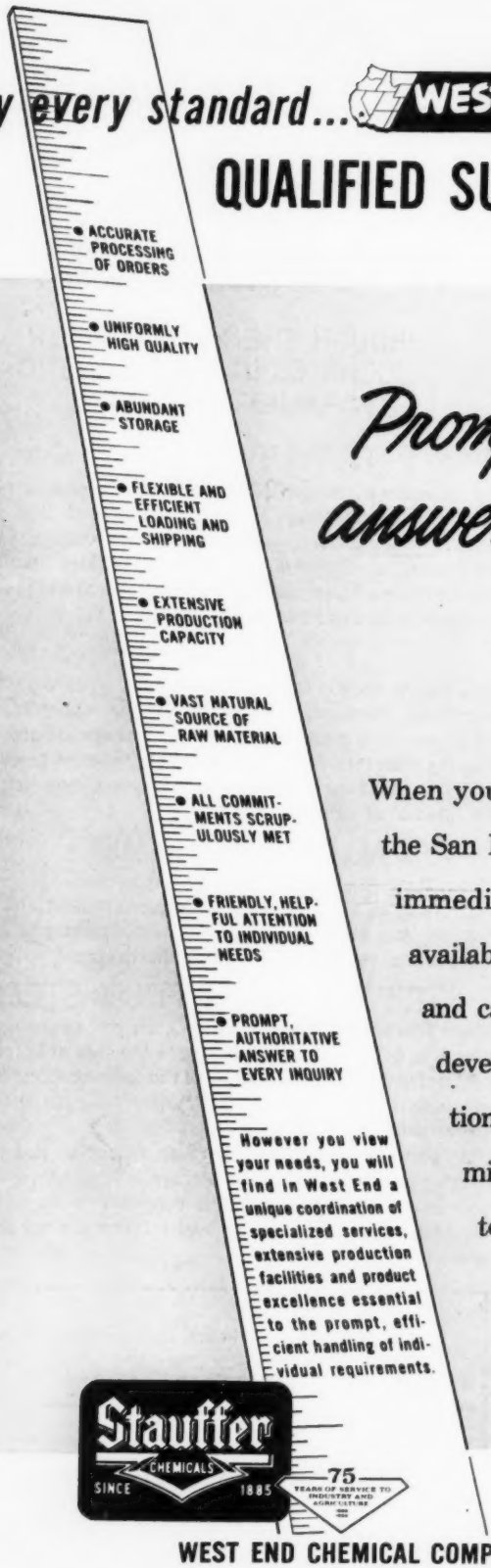
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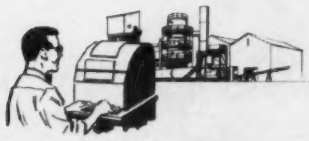

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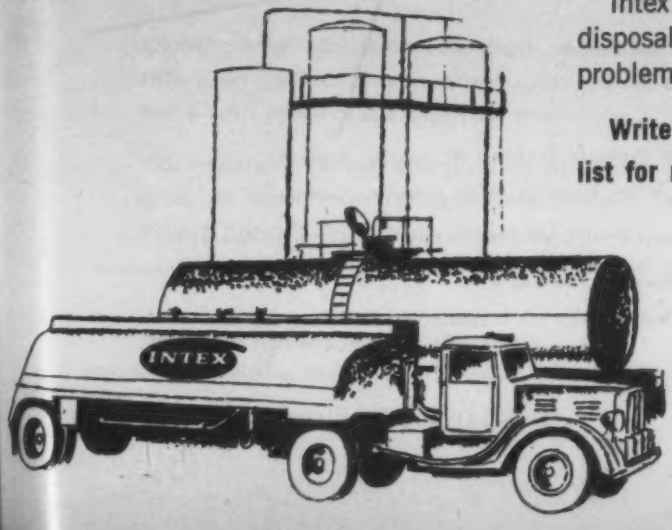

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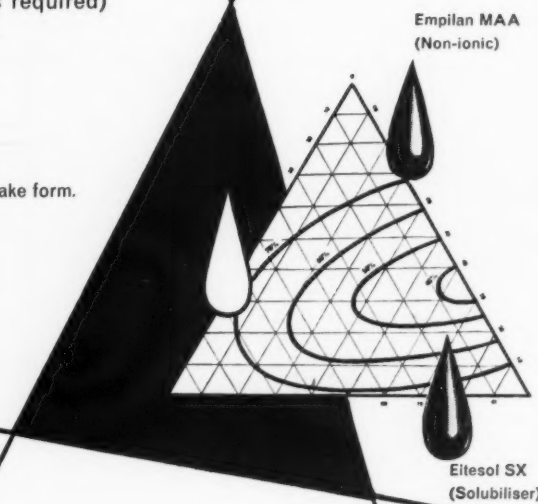

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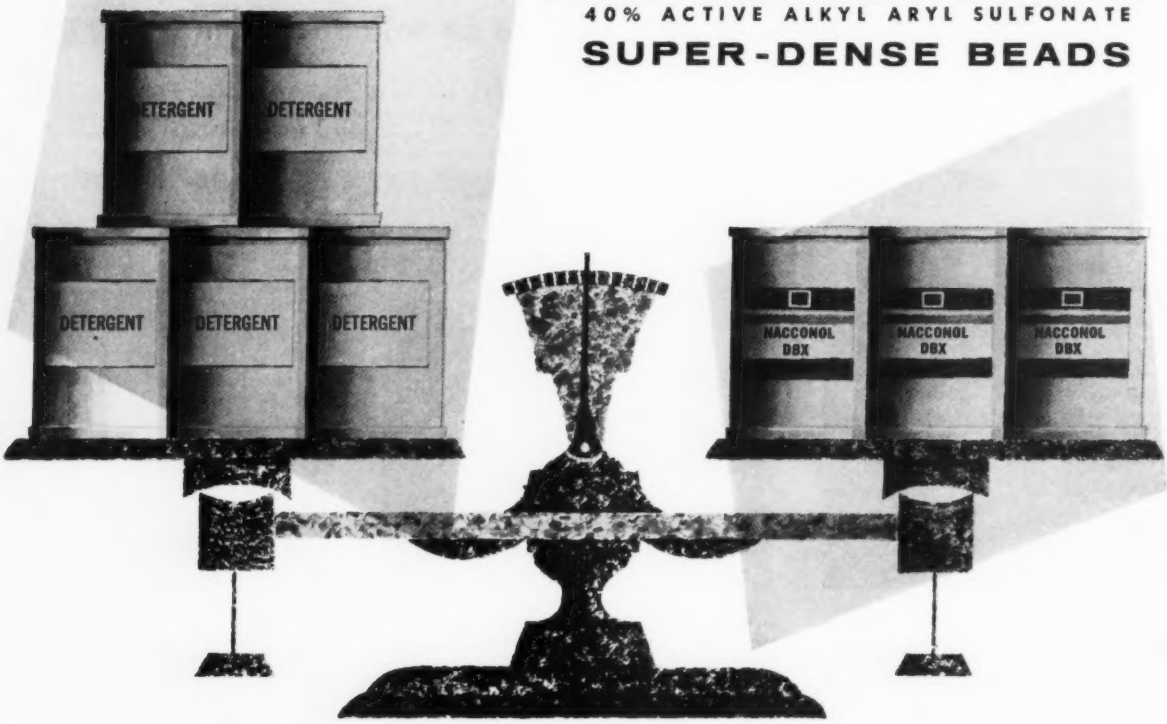

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as the editor sees it...

NOT ENOUGH

Most women do not use enough detergent in their automatic clothes washers to remove soil effectively and to prevent it from being redeposited during the washing process. This was the finding of Prof. Ruth L. Galbraith of the University of Illinois and Marjorie Leach, her co-worker. These girls made a survey and found out that less than half of some 600 women they queried in six Illinois counties measured the amount of detergent put into their washing machines.

This fact that women do not use enough detergent comes as something of a shock to us. For years, we have labored under the impression that most women used a lot more soap or detergent than was actually required, not only for clothes washing but for other cleaning operations as well. We always felt a little smug in the thought that the average woman used too much, that she was thus assured a good cleaning job, — and the excess was rinsed away and the waste was really peanuts anyway.

If it be true that most women use too little detergent, it stands to reason that they will get an inferior washing job. The detergent, not the lack of it, will be blamed. Maybe this could be more serious than appears at first glance.

* * * * *

WARNING

"Warning. Contents under pressure. Exposure to heat may cause bursting. Do not puncture or incinerate. Avoid prolonged exposure to sunlight." This was the statement agreed upon by the executive board of the Aerosol Division of the Chemical Specialties Manufacturers Association as a proper label warning for all types of pressure packages.

Commenting on the liability of an aerosol marketer, John Conner, general counsel of CSMA, in part, said the following: " . . . there is an affirmative obligation on the part of anyone marketing a product to place on the label a warning that will advise of any latent sources of danger in using the product. . . . From there on it would be question of fact as to whether any particular caution statement was adequately designed . . . or what dangers there were that should be guarded against."

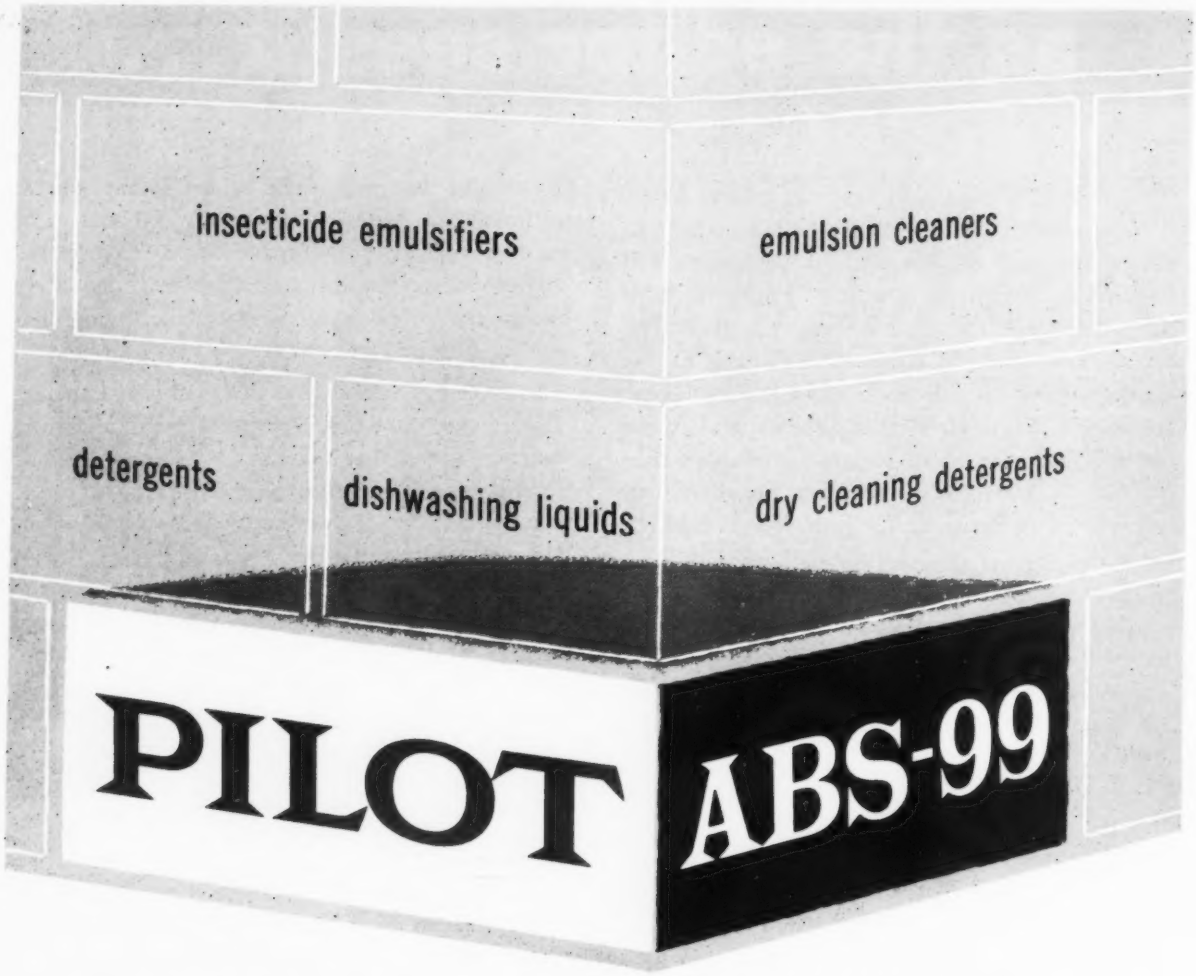
The General Precautionary Labeling Committee of CSMA recommended a similar warning statement to that above, the urgency in adopting this being requests from various states which desire to establish aerosol label regulations. Naturally, aerosol marketers are anxious for uniformity in state regulations. Accordingly, we feel that without waiting for further studies or investigations that all marketers adopt this label form now if they have not already done so. We feel it is the best protection of their legal rights until something better may be found.

* * * * *

RODENTICIDES

A campaign against the rat population in slum areas in New York conducted by *The New York Daily News* recently attracted a lot of attention. Full page news stories in the newspaper told how to eradicate rats, told what to use, where to buy it and how to set out baits. And for those who couldn't afford to buy warfarin or some other rat bait, the newspaper set up five distribution stations in the city and gave away one-pound packets to all who applied. It was an outstanding example of public service by a nwespaper and was widely applauded.

For the commercial-minded compounder of warfarin in other cities, this campaign in New York might have a counterpart. We know that city-wide rat campaigns have been conducted by other cities in the past. But with a leading newspaper in the center of the picture, — plus the contribution of free rodenticide,—we feel that such a campaign can out-do those sparked by public officials. Education and publicity as conducted by a live daily newspaper might have current possibilities elsewhere.



CORNERSTONE for building BETTER PRODUCTS

... has no measurable amount of water
... contains less than 1% sulfuric acid

Whether you formulate shampoos for rugs, cars, or heads, or many other surface active products marketed today – Pilot ABS-99 is your cornerstone for making them better!

ABS-99 is a *98% pure sulfonic concentrate* – the highest commercially available – that you can keep in *plain steel* containers, pump or pour, and neutralize without bleaching.

ABS-99 has outstanding stability, detergency and sudsing character which are a result of Pilot's unique ice-cold, dilute, air-free vacuum sulfonation.

This "*cold processing*" means a better material for building better products: emulsion cleaners without water contamination; organic emulsifiers without inorganic acid contamination; liquids and pastes of low sulfate content; and "dry neutralization" compounding free from moisture or sulfate dilution – dry mixes, thus made, can be gradually raised to higher concentrations by adding quantities of Pilot HD-90, high active Alkyl Aryl Sulfonate flake.

Write for literature and samples today.

LEADS THE WAY TO BETTER PRODUCTS
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PILOT *Chemical Company of California*

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Basic Processors of Hydrocarbons for
Sulfonate Flake
Sulfonate Liquids
Sulfonic Concentrates

POISONS

Recent enactment of the Hazardous Substances Labeling Act by Congress has focused more attention on the general subject of accidental poisoning. Mostly the products damned publicly as the cause of such accidents appear to be household chemical products such as cleaning, polishing, bleaching agents, pesticides and the like. But it would seem that chemicals are in fact a minor cause in the total of poisoning cases in small children. Drugs and medicines are the chief culprits.

In a report by Dr. Matilda S. McIntire, Director of the Division of Preventable Disease Control of the Omaha-Douglas County Health Department, Omaha, Nebraska, over 60 per cent of all accidental poisoning cases in Nebraska during 1958 were attributed to medicines and drugs. Slightly over 20 per cent were due to household chemicals as we know them. On a national basis, figures quoted by Dr. McIntire show a figure of 50 per cent for drugs. The New York Poison Control Center reported 70 per cent due to drugs.

Dr. McIntire's report is published in full elsewhere in this issue. It throws more light on just where household chemicals fit into the accidental poisoning picture. Judging from newspaper clippings, one might readily assume that chemicals in the home were responsible for a great majority, if not all, child poisoning cases.

* * * * *

PACKAGING

Deceptive packaging is attracting wider attention especially among food products and to a lesser degree among detergents, toiletries and the like. Whether it's really deceptive packaging or a multiplicity of package changes partly to cover increased manufacturing costs is a moot question. Consumers Union, which had a representative appear before the National Conference on Weights and Measures held a few months ago in Washington, comes out with a flat statement that "there's a growing rebellion against this way of cheating the public."

They label the wide range in new and mostly smaller package sizes for many standard products as "deceptive packaging." They revive the demand for a set of Federal standards for all package sizes as well as a statement of net weights. Even though any such to us is ridiculous on its face, there are always politicians in Washington and elsewhere who are ready to listen, obviously ready to rush to the aid of the downtrodden public if it will get them in the newspapers. That there has been a lot of package phenagling during the past few years is quite evident. For reasons of cost, it may have been necessary. But it could come home to roost unpleasantly on manufacturers' doorsteps one of these days.

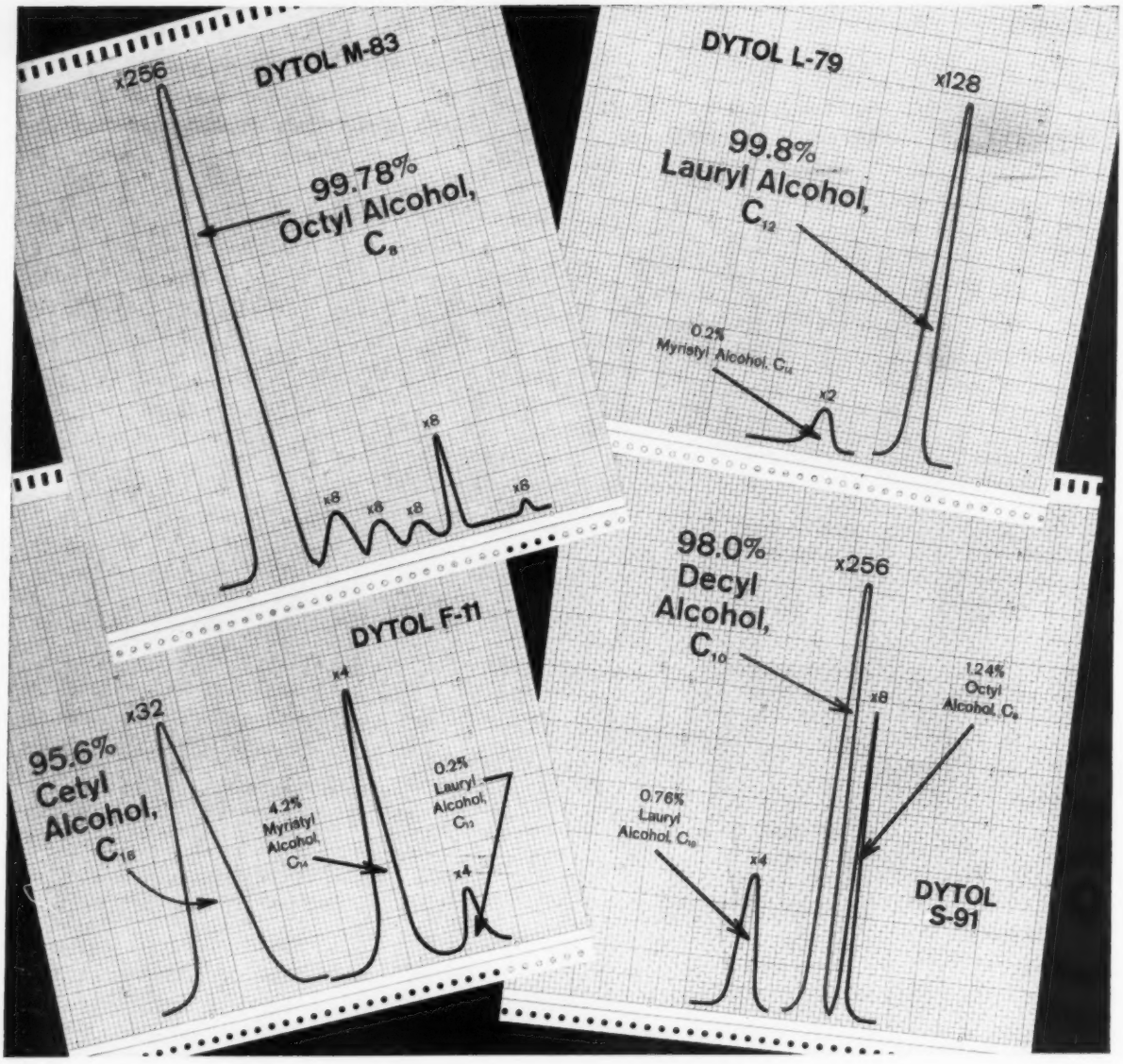
* * * * *

SALES

Sales of detergents and soaps hit a new peak for the first half of 1960, according to the figures of the Soap Association. Both tonnage and value moved up 4.5 per cent over the first half of 1959 which year held the record to date. Synthetic detergent sales were up 6 per cent in tonnage and 5.8 per cent in dollars making up 75.8 per cent of volume and 71.8 per cent of value of the over-all soap-detergent market. For the first time in some years, soap sales held their own during the first half of 1960, actually showing an increase of 0.1 per cent in volume and 1.3 per cent in value.

A few individual items showed somewhat unusual behavior. Scouring cleansers dropped 7.1 per cent in sales, possibly due to inroads of all-purpose cleansers. Synthetic based shampoos dropped 13 per cent, while soap shampoos moved up some 10 per cent, a reversal of trend. Packaged chip soap continued to decline losing an additional 10 per cent of its former market. Granulated washing powders once again moved downward as did all soft potash soaps. Bar toilet soaps showed a further increase in sales, moving upward 3.6 per cent over 1959.

If these sales figures can hold up for the second half of 1960, the year as a whole could break previous records. But we have a hunch that the second half thus far is not to the satisfaction of all soapers. Sales may be off enough in certain quarters that record breaking for 1960 will have to "wait until next year" like the old Brooklyn Dodgers.



Looking for high purity FATTY ALCOHOLS?

Are you looking for high purity fatty alcohols that will give you high purity derivatives? Then note that each of the Rohm & Haas fatty alcohols shown in the gas chromatograms above has an exceptionally high percentage of a single alcohol. The per cent content of any component appearing on such curves is calculated by multiplying the area under the peak by the sensitivity factor (e.g. x256). The chromatographic analyses shown were run by using routine operating techniques typical of every-day production quality control procedures. It can be seen that the sensitivity of the detector was changed as different fractions were recorded, in order to obtain the resolution required for accurate analyses.

Rohm & Haas also offers four other fatty alcohols covering a broader range of compositions: DYTOL A-24 (71% lauryl, 27% myristyl), DYTOL B-35 (60% lauryl, 25% myristyl, 13% cetyl), DYTOL J-68 (82% lauryl, 17% myristyl), and DYTOL E-46 (34% cetyl, 65% stearyl). For technical information on DYTOL fatty alcohol chemical reactions and potential applications, write to Dept. SP-15.

DYTOL is a trademark, Reg. U. S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

as the reader sees it...

Insect Control

Editor:

In the May edition of *Soap Chemical Specialties,* under the heading "As the Editor Sees It," a description is given of a new method of combating insects. According to this method, the insects are fought with fungi and bacteria instead of with insecticides and will then spread diseases among themselves.

As our company at present controls about 80 per cent of the Swedish market for insecticides, we are extremely interested in this new method. We should therefore be grateful if you would kindly let us know where we can obtain further information about it. Has the method previously been discussed in any other magazine?

For many years we have been on a good business footing with Du Pont, Union Carbide and S. B. Penick & Co. among others, but we do not think that these corporations will be able to provide us with any information in this respect. We should therefore be extremely obliged to you for all the help you are able to give us.

Kurt Klarre
Klarre & Co., A. B.
Stockholm, Sweden

Although chemicals are presently our only method of controlling most insect species, scientists are beginning to turn to possible substitutes, mainly as a result of the threat of resistance. For details as to non-chemical methods of insect control we suggest that reader Klarre and others with an interest in the subject read the article "Biological Insect Control" appearing in the March issue of Soap & Chemical Specialties. Another article which touches on newer control methods appears in this issue, under the title, "Progress in Insect Control." Ed.

—★—

Sulfamic Article Source

Editor:

In the July 1960 issue of *Soap & Chemical Specialties* reference is made on page 54 to an article written by Everett E. Gilbert and Benjamin Veldhuis of Allied Chemical Corporation. In the abstract that appears in the magazine it is stated that sulfamic acid and sulfur trioxide were compared as sulfating agents for nonylphenol-4-ethylene oxide detergents.

I have searched the available literature that we have in our library and have not been able to locate the original article. I would appreciate it very much if you could give me the complete reference of the source of your information.

Raymond W. Waddelow
Petrochemical Research Division
Continental Oil Co.
Ponca City, Okla.

To reader Waddelow and others who may be wondering about the source of the abstract which appears under the heading, "Sulfating Agents Compared," the original article was published in the June, 1960 issue of the "Journal of the American Oil Chemists' Society." The article bears the title, "Sulfonation with Sulfur Trioxide: Ethenoxylated Long-Chain Alkylphenols." For our failure to credit the "Journal," our most sincere apologies. Ed.

—★—

Powdered Aerosols

Editor:

We are interested in learning more about the aerosol cans for powders as referred to by Mr. E. E. Husted, Union Carbide Chemicals Co., in his article in the August issue of *Soap and Chemical Specialties.*

Please advise us of the names of companies manufacturing this particular kind of container and send us any other information you feel is pertinent.

(*Turn to Page* 216)

At recent national sales meeting of Drackett Co., Cincinnati, Roger Drackett, president, opened the meeting by cutting a cake commemorating the 50th anniversary of the company's founding. Drackett Co., makers of "Windex," "Drano," "Varnish" and "Twinkle," was founded in Cincinnati in 1910.

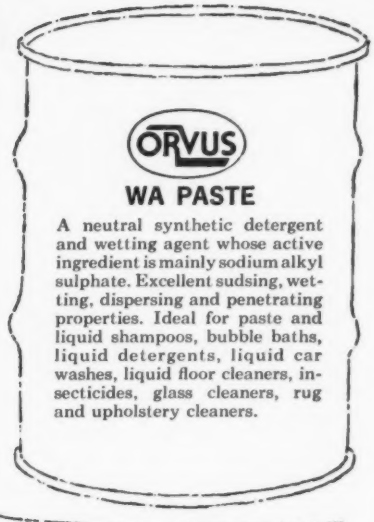
Salesmen from all over the United States and Canada attended the meeting where a greatly expanded advertising program for 1960 and 1961 was announced. Television shows will include two popular night time features, "Perry Mason" and "Rawhide"; four CBS daytime shows; plus several four-color magazine campaigns.

Officials of the company shown here with Mr. Drackett include, left to right: Frank Foust, sales manager; David G. DeVore, Jr., vice-president, director of advertising; Mr. Drackett; Sam Knox, president, Drackett Products Co.; King H. Jones, secretary-treasurer; and Arthur H. Boylan, vice-president, marketing.

THERE'S A PROCTER & GAMBLE PRODUCT FOR EVERY FORMULATION NEED

Kyro EO

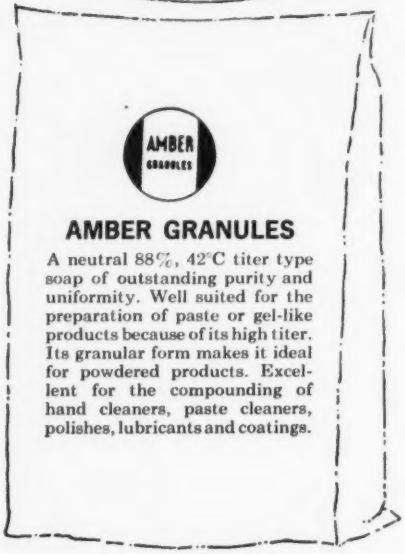
A neutral nonionic synthetic detergent of the 100% alkyl-phenol ethylene oxide condensate type. A light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer detergents, self-emulsifying solvents, laundry detergents, glass, textile and dairy cleaners, insecticides, and bottle washing compounds.



ORVUS

WA PASTE

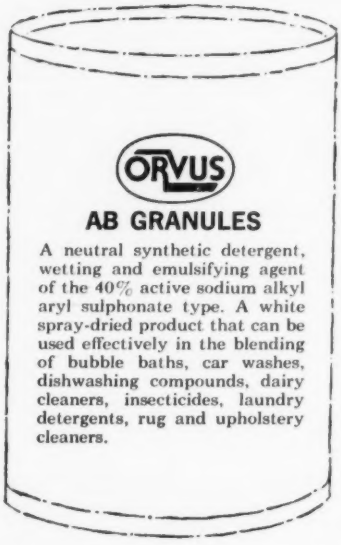
A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium alkyl sulphate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste and liquid shampoos, bubble baths, liquid detergents, liquid car washes, liquid floor cleaners, insecticides, glass cleaners, rug and upholstery cleaners.



AMBER GRANULES

AMBER GRANULES

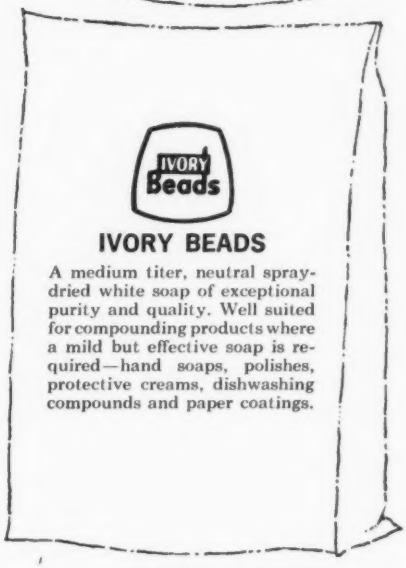
A neutral 88%, 42°C titer type soap of outstanding purity and uniformity. Well suited for the preparation of paste or gel-like products because of its high titer. Its granular form makes it ideal for powdered products. Excellent for the compounding of hand cleaners, paste cleaners, polishes, lubricants and coatings.



ORVUS

AB GRANULES

A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulphonate type. A white spray-dried product that can be used effectively in the blending of bubble baths, car washes, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.



IVORY Beads

IVORY BEADS

A medium titer, neutral spray-dried white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, dishwashing compounds and paper coatings.

ORVUS

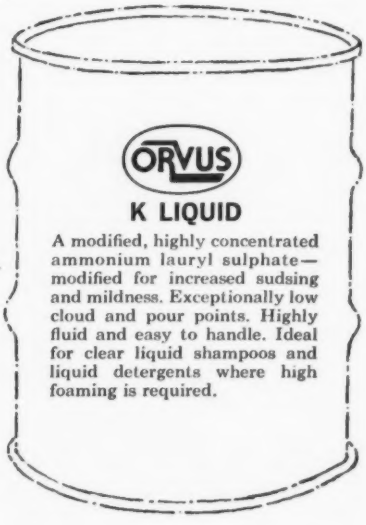
ES PASTE

A specially developed synthetic detergent whose active ingredient is mainly modified sodium alkyl sulfate. Offers exceptional efficiency and stability over a wide range of operating conditions. Its excellent wetting, penetrating, sudsing, dispersing and emulsifying properties make it well suited for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.

Procter & Gamble will gladly supply you with information on how you can save time and money when you formulate with Procter & Gamble products. You can also get technical help in connection with their use by writing to:

Procter & Gamble

BULK SOAP SALES DEPARTMENT
P. O. BOX 599, CINCINNATI 1, OHIO



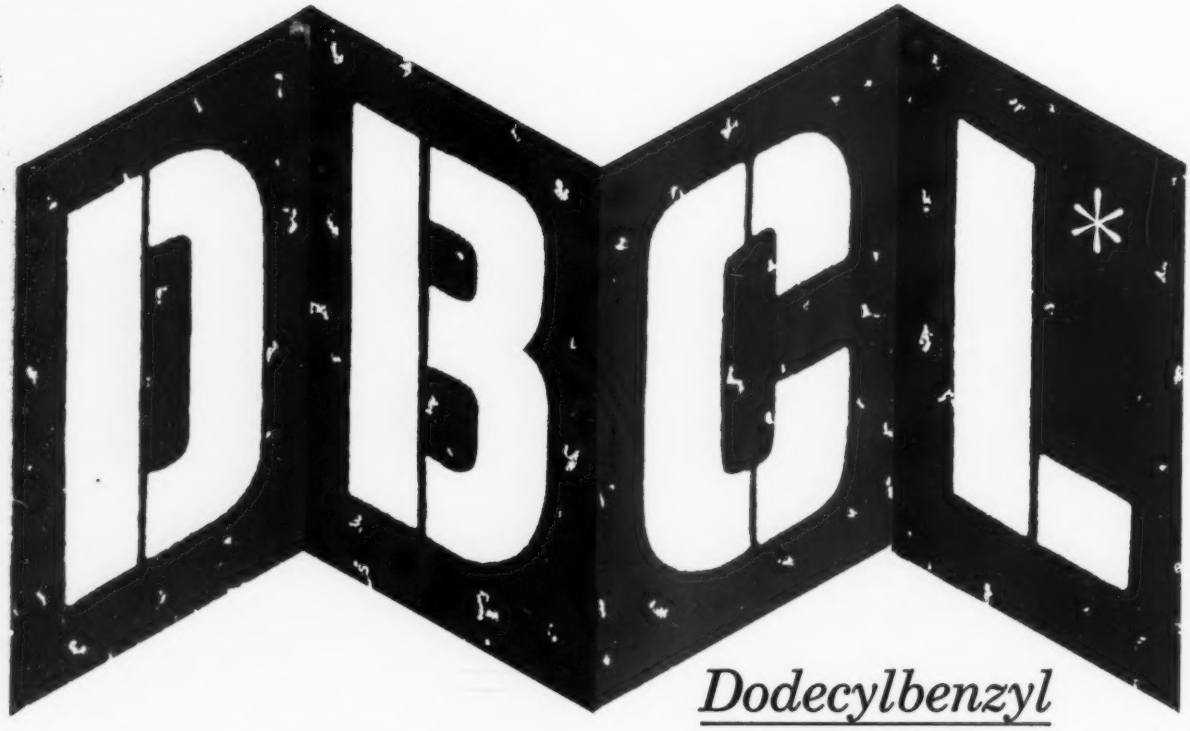
ORVUS

K LIQUID

A modified, highly concentrated ammonium lauryl sulphate—modified for increased sudsing and mildness. Exceptionally low cloud and pour points. Highly fluid and easy to handle. Ideal for clear liquid shampoos and liquid detergents where high foaming is required.

Detergents . . . Cleansers . . . Soaps . . .

CONOCO



Dodecylbenzyl chloride
technical grade
. . . the intermediate for cationic surface active agents

***TYPICAL PHYSICAL PROPERTIES**

Specific Gravity at 60°F	0.965
Apparent Molecular Weight	292
Activity	Approx. 95%
Minimum Activity	90%
Flash Point (C.O.C.)	355°F.
Viscosity S.U.S. at 100°F	105
Pour Point	Less than −5°C.

CONOCO

For chemicals with a head start on the future . . . count on CONOCO!

CONOCO DBCL reacts with tertiary amines to form cationic surface-active agents—known chemically as "quaternary ammonium salts." Quaternaries are used as the active ingredients in sanitizer preparations, as textile softeners, and as antistatic agents for fibers, plastics, and paper. Nonionic surface-active agents may also be made by reacting CONOCO DBCL with the appropriate polyglycol.

For samples and further information, just send a request on your letterhead.

CONTINENTAL OIL COMPANY, PETROCHEMICAL DEPARTMENT
1270 AVENUE OF THE AMERICAS, NEW YORK 20, NEW YORK

Carbide and Carbon Chemicals Co. photograph

Household Detergent Trends

By Foster D. Snell and Cornelia T. Snell,*

Foster D. Snell, Inc.,
New York

USING the term "detergents" in its general sense, the per capita demand of 25 to 28 pounds per person per year in the United States has not changed greatly in the past 20 years, nor is it expected to change. Ours is a mature economy in that sense, not apt to become much cleaner in either our persons or our surroundings. The present total demand of four billion pounds annually is growing as a result of growth in population which is predicted to accelerate further in these "fabulous 'Sixties'" we are entering. Our subject is the household market which takes about 85 per cent of the production. The balance goes into industrial cleaning.

In speaking of detergents, we customarily distinguish between soap, light-duty syndets, and heavy-duty syndets. Historically, detergents developed in that order: soap in antiquity; light-duty syndets in the early '30's; heavy-duty syndets in the early '40's. Light-duty syndets are intended for washing dishes, silks, woolens, fine fabrics. They will not wash cottons white whereas heavy-duty syndets will. In the past three years, syndets have increased from 68 per cent to 75 per cent of the total detergent market and are expected to level off not much above 80 per cent. Distribution between light- and heavy-duty syndets is about 1:4 and the proportion of the light-duty type may well decline further.

Consumption of well over two billion pounds a year of heavy-duty syndets is more understandable when we recall that over 44 million home washing machines of one type or another are in use in the United States. Soap is rarely used in the washing machine any longer, since it is so much easier to rinse syndets out of clothes, even

*Paper presented at 137th annual meeting of the American Chemical Society, Cleveland, April 7, 1960.

to rinse them off the dishes. Mechanical dishwashers are coming into vogue much less rapidly than clothes washers with about four million now in use. A mixture of alkaline salts rather than a syndet is generally applied in these units.

Currently about half the United States production of synthetic surface active agents finds end uses in the detergent industry (in terms of 100 per cent active material).

The composition of soap is simply soap combined with salts as builders in all products except toilet bars. Soaps usually contain 70 to 80 per cent active material which is not the case in synthetic detergent formulations.

Predominant components of a light duty synthetic detergent are the active agent and the neutral builder. These are usually present in a ratio of one : two (i.e. 33 per cent active material). Most typical active agents are sodium dodecylbenzene sulfonate and sodium alkyl sulfate; other compounds are used but are of minor importance. The builder is usually sodium sulfate. Light duty compositions may incorporate a number of additives in relatively small amounts. These will be discussed in the section dealing with heavy duty detergents.

Heavy Duty Powders

A heavy duty detergent is a really complex composition. The active material usually accounts for 20 to 30 per cent of the total composition with a strong tendency toward the lower limit of this bracket. If sodium alkyl sulfate is present it is often tallow alcohol sulfate, mixed with coconut fatty alcohol sulfate. Active ingredients in this type of formulation commonly include a condensed alkanolamine which functions as a suds booster and as a detergent and which merits a few words.

When synthetic detergents were first placed on the market to compete with soap, they were accepted by the public most readily when their suds resembled those of soap. So, from one to five per cent suds booster was added to ensure more finely textured and more stable lather than is commonly obtained with alkyl sulfate alone.

Consumers have become used to synthetic detergents and can be and are now sold on low-sudsing detergents for better performance in horizontal type automatic washers. Nobody could have so convinced the housewife 15 years ago when she was changing over from soap. Low sudsing detergents are generally made by addition of ethylene oxide to tall oil and are not as efficient detergents as the work horses of the industry, alkylaryl sulfonates and alkyl sulfates.

While builders never exceeded the active content in soap, they do so in heavy duty synthetic detergents where the mixture of tripolyphosphates will account for 30 to 50 per cent of the total. While promotion of the original light duty detergents was based on absence of soap curds precipitation in hard water, it was found later that a sequestrant for hardness did offer advantages even in soft water.

A corrosion preventive is the next ingredient for a detergent formulation. When soap is used, metal surfaces are coated with a layer of heavy metal soap which gives them automatic protection. No such coating is deposited by synthetic detergents and a five to 10 per cent addition of silicate is needed for the required protection.

Another generally used ingredient is carboxymethylcellulose, usually abbreviated as CMC. This material is sorbed by the fabric and therefore serves to prevent or at least minimize redeposition of soil. Many replacements for CMC have been suggested but, to our knowledge, none so far has made its mark.

The advent of fluorescent dyes coincided with the growth of the synthetic detergent. Also called optical bleaches or colorless dyes, these compounds absorb ultraviolet light, fluoresce blue, and therefore, when added to detergents, counteract some yellowness of the fabric – an apparent bleaching effect like that obtained in another era by adding bluing to the laundry. Percentage used varies according to efficiency, but never exceeds a fraction of a per cent.

Often a small fraction of a per cent of a thiourea derivative is added to prevent yellowing of silver and, of course, perfume.

Just as coffee sold in different parts of the country is varied to the regional taste, so the composition of a detergent package under the same brand is often varied to suit the regional water conditions. And, speaking of variations, all are modified from time to time according to availability and price of the various ingredients.

Heavy Duty Liquids

The ingredients we enumerated for heavy duty granulated products are necessarily modified for heavy duty liquids. For reasons of solubility, the condensed phosphate is reduced in proportion and is tetrapotassium pyrophosphate in place of tripolyphosphate. To promote solubility of the active agent a coupling agent may be added, which must be both water-soluble and oil-soluble. Isopropanol is a simple example but by no means the only one.

There is a group of liquid products used generally for hard surface cleaning which are not liquid heavy-duty products in the sense in which we have been using the term. These cleaners are usually based on pine oil and are not synthetic detergents.

Light Duty Products

The market for light duty solid products is vanishing, whereas light-duty liquids omit much of the building and have a future. They are used predominantly for hand dishwashing, to a lesser extent for bathroom laundering. A product of the future when mechanical dishwashers will become more widely distributed will be

a light-duty low-foaming liquid. Probably it will consist of a nonionic with a minimal amount of condensed phosphate to take care of hardness in the water and in the soil. However, it may possibly continue to be only inorganic salts.

Detergent Revolution

In changing from soap to the currently dominant heavy duty granular syndet we have cut the organic content of our detergent—using the term in its scientific meaning—from 80 per cent to say 25 per cent. Furthermore, instead of being derived from the soil either through vegetable or, more indirectly, through animal sources, more than half of this reduced percentage is derived from petroleum.

What has this change done to the American economy in about 15 years? Nothing bad from an overall view point, but what some segments gained others have lost. Tallow no longer fluctuates widely, it's a surplus commodity being fed to animals and chickens and exported on a large scale.

The gain to the petroleum industry as a whole has been little more than a drop in the bucket. By contrast, phosphorus compounds have gained enormously. Much of the soap used in the home of 1930 has been replaced by sodium tripolyphosphate. The switch from soap to synthetic detergents necessitated huge additional tonnage of condensed phosphates. The switchover would have been even more rapid than it was, had it not been delayed by the time it took to construct the necessary phosphates production facilities. To give some actual figures: Production of 0.6 billion pounds in 1950 has risen to 1.3 billion this year. About three quarters of this total go into detergents. This changeover naturally brought also a corresponding increase in the output of caustic soda.

The industries producing CMC, condensed amines, and optical bleaches have really been created by the switch from soap to synthetics. In its own way this was as much of a revolution as the change from silk to nylon hosiery.

Bradley Container photograph

New Developments

Historically, sodium dodecyl sulfate was the first active agent, then sodium dodecylbenzene sulfonate, then just a long list of nonionics. Extrapolating from these developments few of the future structures can be predicted.

Research aimed at utilization of surplus supplies of inedible tallow first led to tallow alcohols to replace part of the coconut alcohols for sulfation. This has led to addition of a sulfonic group on the alpha carbon of such acids. Thus alpha-sulfo palmitic and stearic acids are now available in pilot plant quantities. Their salts appear to have potential as ingredients of synthetic detergent bars and as dry-cleaning soaps.

The nitrile reaction of fatty acid and ammonia leads to n-fatty acid aminopropionates, which are amphoteric and yield detergent properties in either acid or alkaline solutions. Their effects on surface tension and interfacial tension are comparable to those of soap and other surfactants. Commercial quantities of these compounds are available.

Simple monofatty acid esters of sucrose have been made in experimental quantities and found about as effective, detergentwise, as the basic surfactants now used in syndets. They have not yet progressed beyond the pilot plant stage.

Which among the numerous organic reactions will produce the next large scale surfactant is difficult to say. There are rumors, at least, that if necessary to *compete* the price of alkylate can be substantially reduced.

The petroleum industry is never static. Therefore fatty alcohols derived from natural fat sources have to look forward to straight chain petroleum derived alcohols, now in pilot plant production. These will offer greater scope in selection, that is C_{10}, C_{12}, C_{14}, etc., whereas natural sources produce largely C_{12} or C_{16}. Also, the amount of alcohols of other than the predominant chain length is small, which, in turn, gives greater flexibility to the formulator.

Speaking of alcohols from

Some day a syndet?

natural sources, the unsaturated ones can now be made by hydrogenolysis. Formerly this was possible only by sodium reduction; hydrogenolysis gave only saturated alcohols. The answer was, of course, a different catalyst.

It has long been known that dodecylbenzene sulfonate is not an optimum product, that the "balance" in the molecule would be better at C_{13} and C_{14}. Now both have become available in limited quantities and may well serve to prolong the domination of the industry by petroleum based products.

In addition to nonyl phenol, which has long been a basic raw material for nonionics, dodecyl phenol has now become available.

No one can visualize at the present time a change in phosphates. Anyone familiar with the sodium oxide-phosphorus pentoxide diagram knows that all of the compounds in it are on the market as well as some glassy products which are not actually chemical individuals. Yet it is not impossible that some synergistic effect of an additive may step up their performance. And there are sequestrants other than condensed phosphates. Although it is difficult to visualize their cost as being competitive, stranger things occasionally happen.

Optical bleaches have been designed to be substantive on cotton and wool and synthetic fibers. Some formulations contain more than one of these dyes. For a time at least one product contained a nonsubstantive fluorescer for the sole purpose to make the syndet look whiter when it was poured from the box. Cost is often the key to the success of a product. Thus the heavy duty granular syndets took the public by storm because in addition to all other advantages, they could be put up in a box of the same size selling at the same price as soap and the housewife, who measures by volume, could use the same amount. By contrast, pelletized powdered sugar is not a success because the volumetric relationship has been altered: the same volume contains less sugar.

Some people may think that synthetic detergents were popularized by putting them up under a brand which had been that of a soap, but this was not the case. The soap brand was used only after syndets had made their big mark under special brands which had never been used on soaps.

In one sense the syndet bar is an unsolved problem. True, synthetic bars are on the market but two of the three leading brands contain substantial amounts of soap. More important, their price is comparable only to high-priced toilet bars, not to the work horse types of stamped all purpose bars. No doubt, they will come down in price but no one knows yet how much. Some day "Lux" and "Camay" and "Cashmere Bouquet" may be synthetic bars, but costs have to come down a lot before "Ivory" and "Swan" will go synthetic.

One change to be expected is the presence of a small amount of synthetic surface active agent in all soap bars. This will disperse the heavy metal soap, prevent formation of the ring around the bath tub. Minor additions of synthetic material to soap bars is a trend which started in France some years ago.

The soap to detergent revolution has claimed some casualties. Certain soap companies overstayed their markets and old names we knew well have vanished because synthetics cut into their business. Conversely, at least one major company which has emerged in their field by marketing synthetics is now also selling soap. It purchased a soap company after it had acquired importance in the syndet field.

The switch to synthetic detergents is by no means an American phenomenon. We changed first, but other nations have followed in our footsteps. The ratio of synthetic detergents to soap has been growing steadily in every market enjoying a high standard of living. However, few countries have made a change as radical as the one we have experienced.■

Next Month . . .

THE fifth revision of "Detergents and Emulsifiers Up to Date, 1960", begins in the October issue of "SOAP and CHEMICAL SPECIALTIES. Only those surfactants which have been introduced since the last version of the listing was published in 1958 are included. The complete list, covering both new and established products, will be available in reprint form from the author, J. W. McCutcheon.

INDUSTRIAL DETERGENTS

Industrial use of surfactants growing at a rate faster than for household detergents. Still to be licked: biological degradation in water purification; spread of automation.

By Henry C. Speel*,
Universal Oil Products Co.,
Des Plaines, Ill.

POSSIBILITIES and probabilities of improvements in the industrial surfactant field are subjects of natural and tremendous interest. There are recognizable deficiencies in many products and gaps in marketing techniques. There are continuing developments in new markets, both planned and unexpected, and changes in problems affecting current usage. The industrial consumer, unlike the housewife, is concerned with both detersive and non-detersive types of surfactants, since some surfactants serve as product ingredients and others as processing assistants. Growing problems of sewage and waste disposal, involving surfactants as well as other materials that are discarded after serving their purpose, are becoming more important.

Strictly speaking, detergents represent only one of the several types of surface active agents, or surfactants, that find industrial usage. Many newcomers in this field have made the initial mistake of figuring that a so-called standard cotton detergency test, plus a Draves Wetting Test and perhaps a Ross-Miles Foam Test, will provide adequate preliminary screening data for new products. Such tests neglect almost half the total surfactant market and considerably more than half the industrial surfactant market potentials. The alert organization realizes that opportunities are largely created by the research efforts it puts into developing products and product applications.

Detergents and other types of surfactants, exclusive of soaps, have been increasing in number for over a century, starting with the surface active sulfonated oils, first used as textile and leather processing auxiliaries in 1834. But it was not until after World War I that the truly synthetic detergents, emulsifiers, penetrants, wetting agents, spreading agents, dispersants and solubilizers began to make real headway against the strongly entrenched soaps. These surfactants found their original opportunities in Europe's war-time restrictions on use of natural fats and oils for soap making, and in the fact that soaps are inefficient in hard water and cannot be used in acidic waters.

Wide publicizing of the fact that synthetics were unaffected by hard or acidic waters, plus the public's desire to utilize the new "miracle" products so widely publicized as wartime's scientific advances, gave chemical producers and soap compounders an opportunity to market synthetics at the expense of soap. Alert chemical manufacturers undertook extensive application research programs and promotional efforts, while most soap producers seemed to rely on their existing market acceptance and pre-war methods of promotion.

Textile Detergents

Strangely enough, most detergent specialists still admit that soap in soft water cannot be beat as a cotton detergent. It was not just a deficiency in soap's technical performance that gave synthetic detergents and emulsifiers the opportunity to gain markets at the expense of soap; it was the conservative philosophy of many soap makers and users. The surfactant manufacturers undertook extensive application research programs, and furnished anyone interested in new products with formulation ideas and technical service help. They did a real marketing job in fields where people were searching for new and miraculous products.

For synthetic detergents and other industrial surfactants to hold their current markets and to expand them, there must be no letdown in the work on improving formulations. Soaps, and yet-to-be-developed modifications of soaps, pose a constant threat. So does the possible use of solvents as processing media instead of water. Textile dyers, for example, are beginning to find that by using a solvent instead of water they can dye wool much faster and at lower temperatures. Polyester fibers are being dyed with the aid of organic carriers, or pressure-dyed at temperatures above 212°F. These methods may provide new oppor-

*Paper presented at American Chemical Society meeting, Cleveland, O., April 7, 1960.

tunities for some surfactants and may decrease markets for standard types of levelling agents. In the dry-cleaning field, solvent-soluble and salt-free anionic detergents are gaining headway. If the local dry-cleaner can handle solvents safely and efficiently, despite a lack of technical training, industrial processors can do so too. Obviously such markets demand application research.

In the field of water-soluble detergents, it seems possible that some combination of nonionic and cationic surfactants may be used in producing a superior detergent, better than soap or sulfated or sulfonated anionic detergents. It would have a cleansing and softening action as well as stability to hard water. The commercial success of a widely known anionic detergent bar which contains 50 per cent cold cream points to such a possibility. So does the emergence on the grocery stores' shelves of combinations of liquid starch and cationic softeners which aid in restoring softness to fabrics washed with "built" anionic detergents.

There should be an opportunity for new organic builders, particularly for liquid detergents, to implement the action of carboxymethyl cellulose and the ethylene diamine type sequestrants.

A soap or detergent which would clean, brighten and starch fabrics in one operation is desirable in the textile mill, as well as in the home. Starch gives "handle" and stiffness, dependent on the type and concentration, but it is not necessary that the finish imparted should actually have to come from a starch in such a detergent combination. The number of other combination detergent formulations needed for specialty uses, as in washing men's cotton or "Dacron" shirts or shirtings, is legion, both in the household and industrial markets.

In the textile field, it has been noted that the hydrophobic synthetic fibers, such as nylon and "Dacron," tend to get greyer and darker with repeated soiling and washing cycles. Brighteners added to synthetic detergent formulations fluoresce in the blue end of the spectrum, and thus they counteract the yellow of aging cellulose and produce whiteness. But they cannot improve a fabric that gets greyer with successive soil and wash cycles. Here is a detergent deficiency common to both soap and syndets which provides an opportunity for product improvement.

Waste Disposal Problems

Sewage and waste disposal problems created by replacement of soaps with synthetics are increasing. It is no longer just a problem of being able to handle foam caused by detergents that cannot be precipitated by polyvalent salts, the way soap has long been eliminated. Nor is B.O.D. (biological oxygen demand) the only other criterium for polluted or purified waters. Most of today's major surfactants resist biological degradation or decomposition ordinarily associated with sewage treatment, river self-purification processes, and ground water travel. The United States Public Health Service's recent report to a Senate committee warns of grave dangers coming with our growing population, leading to the inevitable need for people in many areas to drink water that previously had been used and reused. Based on this reasoning, the *Chicago Tribune* commented (April 1, 1960) that pollution of the lakes is a far more serious matter than whether Chicago takes a little more lake water, thereby depriving Canadian and New York power interests of an amount of hydro-electric energy. There are also reports from various parts of the nation that even ground water sources are showing increasing contamination from detergents that must have traveled underground.

This water purification problem appears to be one that must be solved by chemical methods or new detergent synthesis, if the alternative of a return to soap for detergent and processing needs is to be avoided. Indeed, soap with suitable builders and water softeners may be the simplest answer. On the other hand, the increasing world population with its growing need for food fats and oils makes it more logical to look to synthetics for a host of non-food uses. It isn't necessary to look 600 years ahead, as *Time* magazine did recently, to a period when there will be only a square meter of earth's land surface for each individual, to see that synthetics must solve this problem.

Non-Detergent Uses

Thus far, most of the interest has been placed on synthetic detergents, though surfactants of all types enter our industrial products and processes and contribute to pollution. Rewetting agents are used in paper towels. Leather fatliquoring agents, the metal industry's cutting oils and plating assistants, and other surfactant-containing products which have been used in industrial processing, and are then discarded with the process water, all add to the pollution. So do emulsifiers, wetting agents and dispersants used in agricultural sprays, emulsion paints and scores of other products. They may be used and forgotten by the user, and yet cause problems to those who must reuse the "purified" water.

Surfactants of all types face a variety of usage problems wherever it is desirable to bring surfaces together, closer, faster. For example, the floor wax industry, with its products consisting of microcrystalline waxes and polystyrene emulsions which often must be spread smoothly on hydrophobic vinyl floor coverings, is reportedly using a $50.00 per pound fluorocarbon surfactant because ordinary surfactants will not lower the surface or interfacial tensions enough to promote the desirable wetting speed, or ease of spreading. With increasing use of synthetic polymers for all kinds of products, there will be many more such problems. Certainly, a less expen-

Surfactants of all types face a variety of usage problems wherever it is desirable to bring surfaces together, closer and faster. An expensive fluorocarbon surfactant is reported used in a product consisting of microcrystalline waxes and polystyrene emulsions for use on vinyl floor covering.

sive, but equally efficient, type of wetting agent is desirable.

Both the textile and the paint industries demand auxiliary emulsifiers, wetting, spreading and dispersing agents that have polar groups which can be tied up after their work is done. Products employed for pigment printing of textiles, for water-proofing of fabrics, for emulsion paints and many other compositions, must be applied from aqueous media wherever possible and yet must resist subsequent washing operations. Moreover, they must retain stability to storage prior to being applied or formulated for use. Formulators of insecticidal emulsions, polishes, coatings and adhesives face similar problems.

The ore flotation industry and a variety of process industries interested in preferential wetting of minerals or other surfaces, and in substantivity or surface attractions, are diligently searching for surfactants that provide these special effects and other allied properties. Surface active corrosion inhibitors are finding growing markets, as are asphalt additives, lubricating oil and gasoline additives, antifogging agents, antidusting agents, antistatic agents and so forth. The list is continually being increased as new opportunities are being uncovered for uses where surface properties of solids, liquids and gases need modification.

New Surfactant Molecules

Returning for a moment to soap and its structure, it is surprising that the industry has accepted for so long the dictum that the carboxyl group in soap was the group that had to be avoided in formulating synthetic detergents. As a result, the sulfates and sulfonates and the polyethoxy ethanols have taken over most of the market from the carboxylates or soaps. The position of fatty acids, oils and fats as starting materials has also suffered in the growing emphasis on general-purpose detergents. Yet, to many of us who have spent years working with soaps and detergents, there are many potential values in the straight-chain hydrocarbons and in the carboxyl group that characterizes soaps. There is an opportunity to improve surfactant products by building chemical structures that contain both these groups.

For example, there is reason to believe that surfactants containing a straight-chain hydrocarbon may be more susceptible to biological degradation than those based on branched-chain hydrocarbons. Surfactants containing the carboxyl group, if chemically modified elsewhere in the molecule, or suitably built so as to be useful in moderately hard waters or even in acidic waters, might be more susceptible to sewage or waste water treatment for their removal than are existent major surfactants. This combination of ideas, based on known advantages and disadvantages of soaps, is worth considerable study.

Ampholytic surfactants, which contain both an acidic and a basic function in their structure, have been known for years but until recently they aroused little interest. Better knowledge of surfactant applications and extensive research devoted to their effective utilization have uncovered areas

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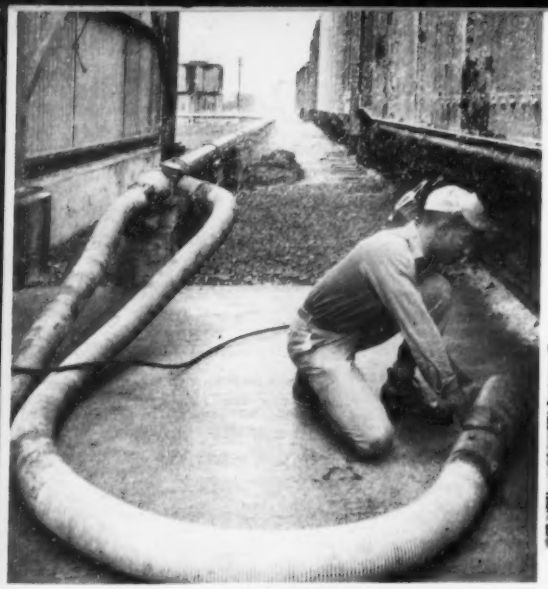
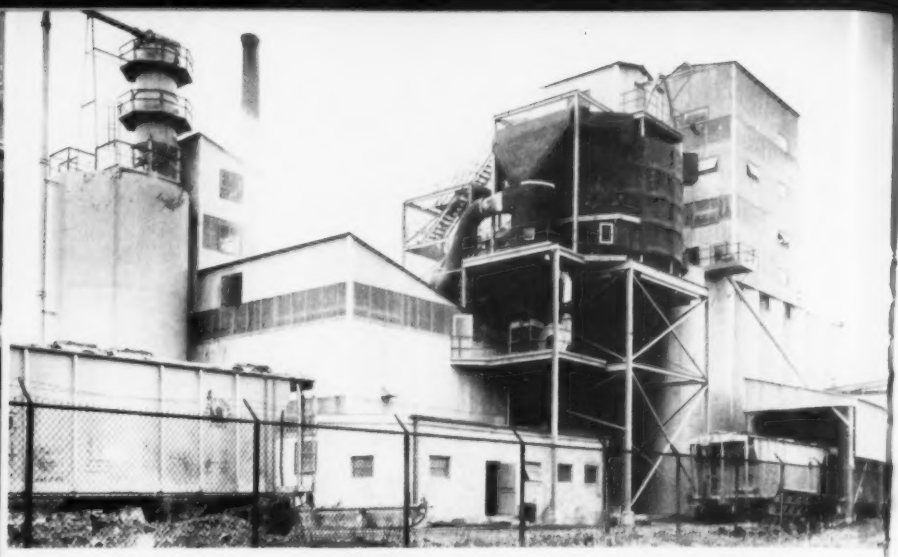
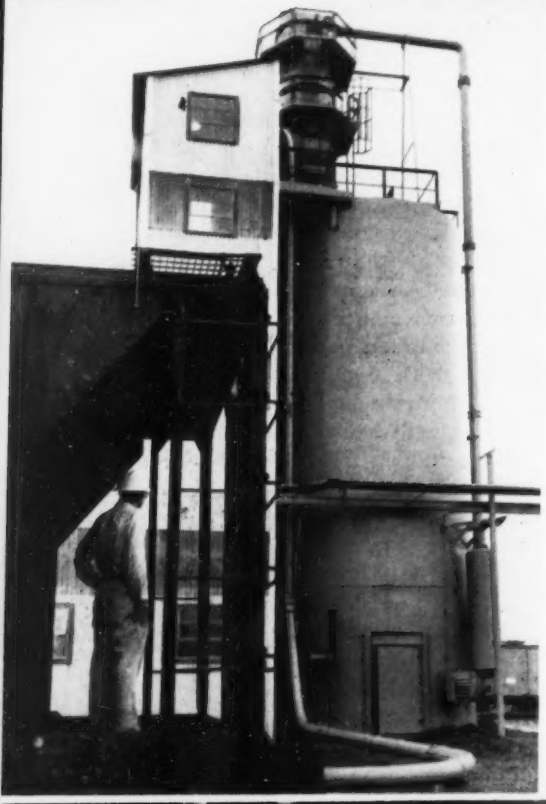




American Agricultural Chemical Company's facilities for manufacturing sodium tripolyphosphate at Carteret, N. J. Storage silo, extreme left, is for soda ash, one of basic ingredients. Phosphoric acid (second basic ingredient) tank storage is located behind railroad car at left. Structure adjacent to soda ash silo houses mixing equipment, where soda ash and phosphoric acid are combined. Spray drying tower, right, is one of largest of its kind. Further right are storage silos for finished product. Tower at extreme right houses scales and conveyors to carry finished product to storage bins.



American Agricultural Chemical Company's

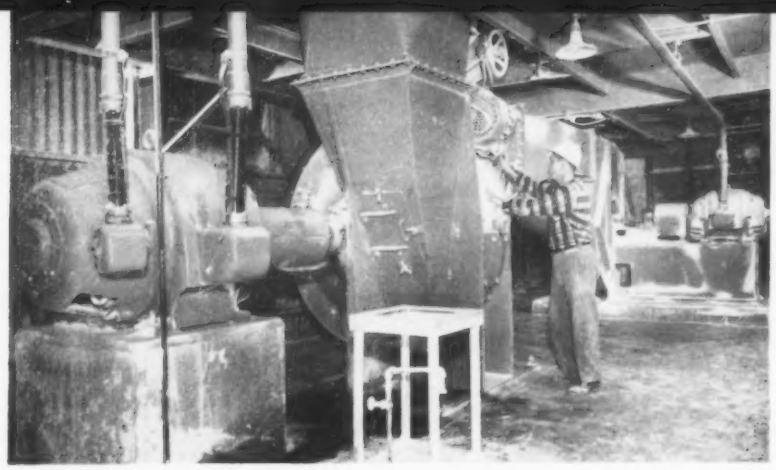
New Plant to Produce Sodium Tripolyphosphate

Incoming soda ash is received by rail (top, left), and unloaded and conveyed to storage silo pneumatically.

Pneumatic receiving system (left, center) through which soda ash is unloaded and conveyed to storage silo adjacent to mixing building.

Soda ash is automatically batch weighed (bottom, left) as it is conveyed from storage silo to mix building. Phosphoric acid is metered as it enters the mixing process.

Following mixing, the "tri poly" is carefully adjusted (bottom, right) to proper chemical ratio (pH) with caustic soda (NaOH) or phosphoric acid (H_3PO_4). At this check point, a sample of the soda ash-acid mixture is drawn off for laboratory analysis. This includes tests for sodium-phosphorus ratio, clarity, color and pH.



In a second control laboratory, (top, right) reaction temperature rise is checked. Continuous checking of product quality insures uniform product. All variants are held within strict limits.

Mill (top, left) where granular tripolyphosphate is powdered and sized to specifications.

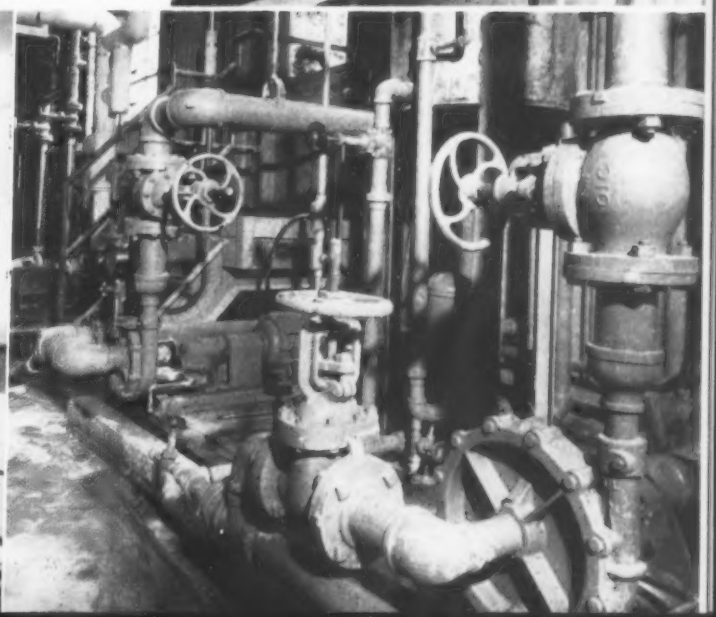
AMERICAN Agricultural Chemical Co., New York, entered the sodium tripolyphosphate field recently, when its new plant began operations at Carteret, N.J. Equipped to utilize the latest equipment developments, the plant also includes step-by-step quality control to assure a product that meets rigid standards.

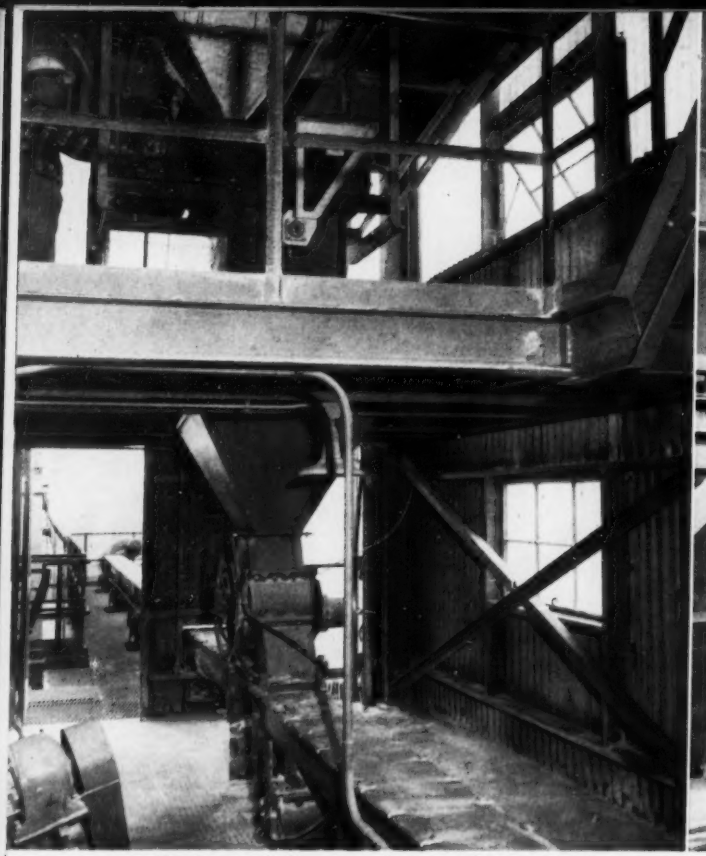
While sodium tripolyphosphates, all-important detergent ingredient, is a new addition to the company's roster of industrial products, American Agricultural Chemical Co. has for many years been a basic producer of other products derived from phosphorus. Its manufacturing activities are based on large holdings of phosphate rock lands in central Florida. In addition to producing ground phosphate rock, superphosphate and a complete line of mixed fertilizers for farm and turf and garden use, its growing list of industrial chemicals covers the broad field of phosphate chemicals—elemental phosphorus, phosphoric acid, phosphides, sodium and calcium phosphate, and fluo-

Passing solution into spray dryer (right, center) results in intimate mixture of mono- and di-sodium phosphate. This is an extremely critical point in determining the uniformity of the finished product.

Mixing department control board is located beside the control checkpoint (bottom, left), where all adjustments are determined and made for the finished solution.

Two banks of pumps (bottom right) are required to assure constant flow of raw materials into the system, and to provide water for cooling tower.





Headhouse (left) where final weighing of finished product is made, before it is placed in storage silos, awaiting shipment.

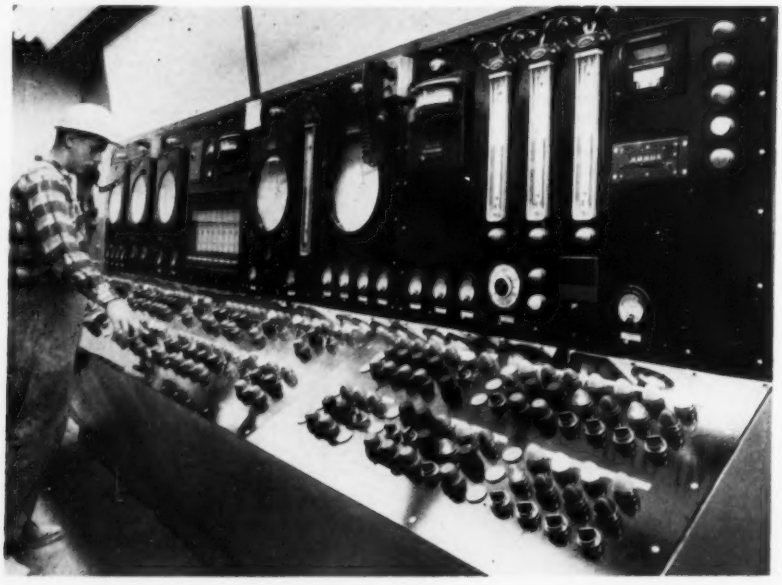
Bagging (right) is final step in producing "AA Quality" sodium tripolyphosphate. Available either in bulk or in 100-lb. bags.

silicic acid and related fluorides and silicofluorides.

The company's operations cover fertilizer manufacturing facilities at 37 locations in the United States, Canada and Cuba, and chemical facilities at 13 locations in the United States. These are in addition to their basic mining operations at Pierce, Fla.

Of the two basic ingredients in sodium tripolyphosphate, the A.A.C. manufactures its own phosphoric acid. Old acid facilities at Carteret were recently replaced by a larger, modern plant. The acid is piped from the production line directly to the tripolyphosphate facilities, where it is held in storage tanks. The second major ingredients, soda ash, is received by rail and is unloaded through a pneumatic system into a storage silo.

The main control board, from which all processing from spray drying to finished product is controlled. The control board completely automates manufacture, minimizing human error.



Basic Reaction

The basic reaction takes place when the soda ash is combined with phosphoric acid, which is metered into the system. Ingredients are initially proportioned to meet the specifications of the end product. The resulting solution is checked and adjusted to desired specific gravity and chemical ratio by the addition of small quantities of caustic soda or acid. Solutions are checked at each step in the process where variations in quality might occur, and adjustments are made accordingly.

The entire mixing operation can be controlled from a control panel centrally located near the quality control center. Complete automation enables close control

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Laboratory Methods for Evaluation of

DRYCLEANING DETERGENTS

By Lloyd E. Weeks* and John T. Lewis,
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UP to the present time, very little has been published concerning methods for laboratory evaluation of drycleaning detergent compositions or for screen testing surfactants which might be formulated into drycleaning detergents.

In 1950, Zussman and Bernstein (1) described a laboratory detergency test which involved the use of various fabrics soiled with a mixture of "Oildag," "Nujol," and mutton tallow. They claimed good correlation with plant scale test results, but they used detergent concentrations much lower than those employed today.

A year later, Barker and Ranauto (2) discussed the applications of nonionic surfactants in the drycleaning industry. Their work covered a wide variety of products including spotting compositions and wet cleaners, in addition to drycleaning detergents.

Since then, several workers at the National Institute of Drycleaning (3,4) reported interesting relationships concerning solvent relative humidity and water soluble soil removal, using viscose swatches impregnated with salt and sugar. Water soluble soil removal varied directly with solvent relative humidity and detergent concentration in plant scale tests.

Previously, in order to check out any given formulation as a drycleaning detergent, one usually had to resort to actual practical tests. Now, however, by using the proper tests, surfactants can be screened in the laboratory to ascertain their potentialities as drycleaning detergents. In addition, proprietary detergents can be compared, showing results which generally correlate with plant scale tests.

Requirements

The requirements for a drycleaning detergent are numerous, but some of the most pertinent ones are listed as follows. A drycleaning detergent should:

A. Be a clear liquid.
B. Be completely soluble in either (preferably both) Stoddard solvent or perchloroethylene, the main solvents used for drycleaning.
C. Have a satisfactory minimum flash point.
D. Exhibit minimum adsorption loss on fabrics.
E. Should, of course, remove soil. This includes "dirt" and stains caused by foods, sugar and perspiration, etc.
F. Should prevent the removed soil from being redeposited on cleaned fabrics. This is redeposition prevention.
G. Should be compatible with automatic solvent humidity controls.
H. Should not interfere with solvent filtration.

Several of the above requirements such as product clarity, solvent solubility, and flash point can readily be determined in the laboratory. Soil wool detergency, soil redeposition, and water solu-

*Paper presented at annual meeting of ASTM Committee D-12 on Soaps and Other Detergents, New York. March 14, 1960.

ble soil removal eventually require full scale plant tests for a thorough evaluation. Initial laboratory screening tests for these functional properties, however, are very useful to aid in selecting the most promising detergents. Screening tests save considerable time, labor and materials,. Other tests such as filter pressure build-up and sorption of detergent on fabrics are best evaluated under plant conditions and are therefore beyond the scope of this paper.

Experimental

Laboratory screening tests for drycleaning detergents in addition to correlating with plant practical tests should: be simple, require minimum equipment and time, and also be reproducible. Although details of the methods are appended, they are described briefly as follows:

1. Detergent clarity and stability are observed after the product has been stored under several temperatures.
2. Solutions of detergent in Stoddard and perchloroethylene solvents are observed and noted for clarity after storage under a range of practical use temperatures.
3. Flash point by open cup is measured to determine safety limits for detergent usage.
4. Redeposition prevention or whiteness retention is evaluated by manually agitating white wool and cotton test swatches in a detergent solution containing carbon black, then rinsing and measuring loss in swatch reflectance. Carbon black was selected since it represents one of the most objectionable types of soil. Barker and Ranauto (2) have described a similar test which was carried out in a Terg-O-Tometer.
5. Soil removal from wool is evaluated by reflectance measurements on washed and rinsed wool that has been previously soiled with carbon black and greases. Again, carbon black is selected since it is a stubborn soil to remove. Preparation of this soil and the Launder-Ometer detergency test have been described by Harris. (5)
6. The water soluble soil test is conducted in a Launder-Ometer using rayon swatches impregnated with sodium chloride. The application of sodium chloride to the fabric and its analysis before and after washing are described by Fulton, et al. (3,4) Sodium chloride soil swatches are available from the National Institute of Drycleaning. These tests are run at 75 per cent solvent relative humidity, since solvent moisture content greatly influences water soluble soil removal.
7. Solvent relative humidity is calibrated according to a method described by the National Institute of Drycleaning. (6) Viscose swatches are conditioned 60 minutes in a given concentration of detergent in Stoddard or perchloroethylene solvent with moisture contents ranging from 0.05 to 0.30 per cent in about

Table I. Detergents Evaluated

Detergent	% Principal Active Ingredient
A	50 — Petroleum sulfonate
B	66 — Amine salt of alkylarylsulfonic acids
C	60 — Mixed salts of long chain alkylarylsulfonic acids
D	40 — Nonionic surfactant

Table II. Soil Redeposition Prevention

Detergent	Stoddard solvent Cotton	Stoddard solvent Wool	Perchloroethylene Cotton	Perchloroethylene Wool
A	83	63	43	29
B	87	93	25	53
C	96	98	93	96
D	87	89	73	68
95% Confidence limits	±1.4	±2.9	±1.4	±2.9

Table III. Plant Redeposition or Graying/ Load Cleaned

Detergent	Graying or Decrease in Reflectance on — Cotton	Viscose Rayon	Wool
A	10	5	4
B	17	8	4
C	3	3	2

1.0% detergent concentration, 70-75% solvent relative humidity in perchloroethylene.

Chart I.

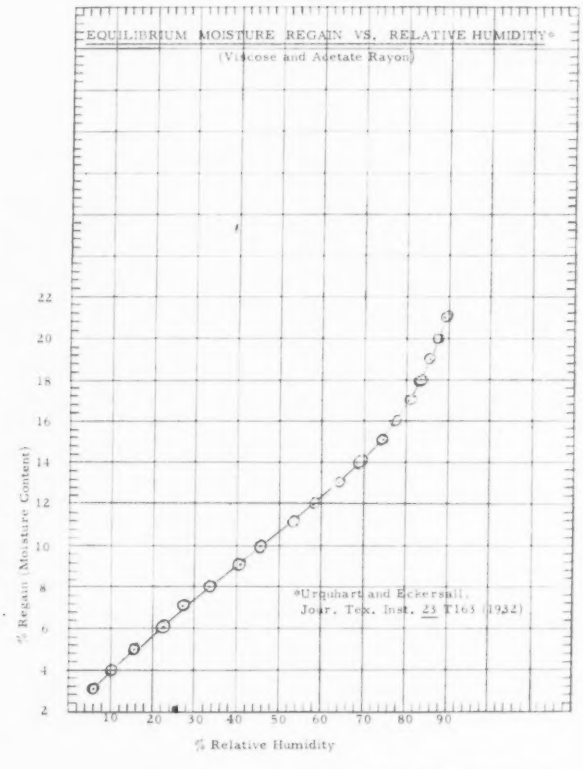
EQUILIBRIUM MOISTURE REGAIN VS. RELATIVE HUMIDITY*
(Viscose and Acetate Rayon)
% Regain (Moisture Content)
% Relative Humidity
*Urquhart and Eckersall: Jour. Tex. Inst. 23 T163 (1932)

Table IV. Soil Redeposition — Effect of Surfactant Type

	% Protection in Stoddard Solvent	
	Cotton	Wool
A. Nonionics		
Fatty alcohol A + 1 EO*	60	99
Polyoxyethylene thioether	53	29
Fatty diethanolamide	83	72
B. Anionics		
Isopropylamine salt of dodecylbenzene sulfonic acid	68	100
Sodium fatty alcohol A + 1 EO* sulfate	69	100
Sodium fatty alcohol B + 15 PO** sulfate	50	91

*Moles of ethylene oxide.
**Moles of propylene oxide

0.05 per cent increments. The swatches are removed from the detergent bath and analyzed for per cent moisture pick-up (regain) by the Karl Fischer method. Water analysis by volume is also carried out on the detergent solution. Then detergent solution water content by volume is plotted vs. viscose regain. A calibration of viscose regain vs. relative humidity under which viscose was conditioned has been presented by Urquhart and Eckersall. (7) Thus, solvent water content is expressed as the amount of moisture that fabric would pick up when stored at a given atmospheric relative humidity.

Discussion

The detergents used in this study include the proprietary products listed in Table I (facing page). Although these detergents are mixtures of active ingredients and solvents, their principal actives are identified. One of these detergents contains a nonionic surfactant as a minor component in addition to organic sulfonate, the major ingredient. Data in Table II show redeposition prevention values which are calculated from swatch reflectance after testing, divided by reflectance before testing, multiplied by 100. Under these severe carbon soil conditions, the detergents are fairly effective for preventing redeposition in Stoddard

Table V. Effect of Concentration on Redeposition Prevention

% Conc. Detergent C	Stoddard		Perchloroethylene	
	Cotton	Wool	Cotton	Wool
0.50	98	98	—	93
1.00	98	98	83	95
2.00	96	98	93	96
3.00	96	98	96	98

Figure 1. Effect of Detergent on Redeposition

Top swatches: Unwashed
Center swatches: Washed in Stoddard Solvent only
Bottom swatches: Washed in Stoddard Solvent with 2% Detergent C

Table VI. Soiled Wool Detergency

Detergent	% Soil Removed	
	Stoddard	Perchloroethylene
A	41	48
B	50	26
C	64	64
D	49	37
None	12	7
95% Confidence limits	±3.0	±3.1

2.0% detergent concentration, 75% solvent relative humidity.

or perchloroethylene solvents. Detergent C is more effective in both solvents than the other products. The small confidence limit shows that the test has good reproducibility. These data are substantiated by plant tests where loads of woolen garments were cleaned without rinsing in one per cent detergent concentration in perchloroethylene at 75 per cent solvent relative humidity. Table III lists plant test data showing that Detergent C produces less graying on cotton, rayon, and wool. The values given are averages for several plant runs where fresh white swatches were used in each run. Graying on a fresh swatch is usually greater the first time it is cleaned than for graying from subsequent cleanings in plant operation where a single bath is used. These values indicate that redeposition in drycleaning is greater than that for laundering or wet cleaning.

Surfactant structure and type have a considerable effect on soil redeposition properties, as illustrated in Table IV. Types of solvents and other additives in the detergent also have an effect on redeposition. Proper formulation, however, can lead to optimum redeposition prevention. The claim by Fulton, et al. (3) that detergent concentration has little effect on redeposition is confirmed by data listed in Table V. The redeposition prevention values for Detergent C change very little for concentrations of from 0.50 to 3.00 per cent detergent. Although these redeposition tests are made with Monstanto Grinders Lampblack No. 2, other carbon blacks will

rate the detergents listed here in the same order of effectiveness. The Launder-Ometer could be used to replace manual agitation, but we have found the hand method more expedient. The effect of a detergent on redeposition prevention is dramatically illustrated in Figure 1. The redeposition test was run with and without detergent. Where detergent was present, practically no soil deposited on the test swatches.

Soiled wool detergency data are listed in Table VI. It is noted that very little soil is removed using solvent alone. This test has fairly good precision, since the confidence limits are small, so that differences are easily detected between detergents. The detergents evaluated are known to have fairly good soil removal properties in Stoddard and/or perchloroethylene solvents. These test data confirm practical evaluations. It is important to remember that each set of tests should be made with a given strip of soiled wool fabric, since variations are encountered between soil strips and lots. Although these tests were run under 75 per cent solvent relative humidity conditions, we have found that moisture control is not critical in this test using artificially soiled fabric.

Water soluble soil or sodium chloride removal data are listed in Table VII. Detergents A, B, and C, which are anionic, remove more soil than the nonionic Detergent D. These data agree with those from practice where Detergent D is claimed inferior for removing water soluble soil. Figure 2 shows the effect of moisture or solvent relative humidity on salt removal for tests made under plant scale operation. In order for a detergent to provide optimum salt or water soluble soil removal, the solvent relative humidity must be properly controlled. Moisture can be determined in the plant drycleaning bath by a conductivity meter or an electric hygrometer. By connecting a moisture sensing device with a solenoid to actuate a water valve, it is possible automatically to control the amount of water in the drycleaning bath.

Table VII.
Water Soluble Soil Removal

Detergent	% Sodium Chloride Removed Stoddard	Perchloroethylene
A	18	24
B	19	12
C	21	21
D	0	0
None	1	2
95% Confidence limits	±2.8	±4.2

2.0% detergent concentration, 75% solvent relative humidity.

Tests with sodium chloride soiled swatches should be made on the same strip or lot of soiled fabric since the amount of salt and ease of removal will vary from lot to lot.

Summary

Laboratory methods have been presented for evaluating drycleaning detergents. Physical tests include detergent stability, solvent solubility, and flash point. Functional tests are carbon soil redeposition, soiled wool detergency, and water soluble soil removal. Data presented show that functional tests have reasonable correlation with practice. These tests are fairly rapid to run, require a minimum of equipment, and have good reproducibility. They are useful for comparative evaluation of proprietary compositions as well as for screen testing surfactants and formulations in product development.

(To be Concluded)

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Figure 2

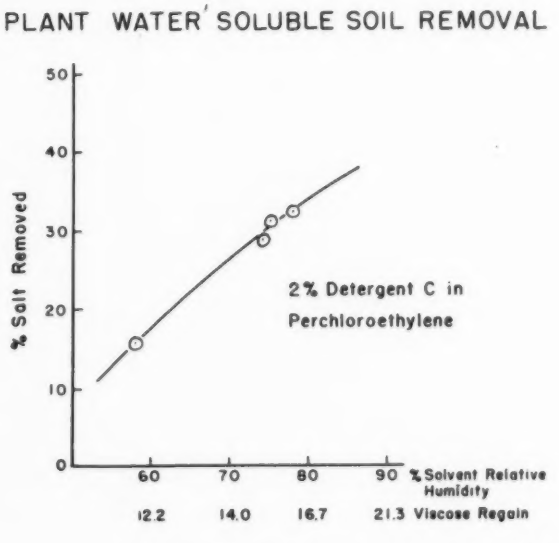

Figure 2. Effect of moisture or solvent relative humidity on salt removal for tests made under plant scale operation.

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	60L	60%	High	Clear, pale yellow	60.0%	Liquid detergents, wet textile processing, shampoos, car wash, household detergent formulations, janitorial supplies.
	35KX	35%	Medium	Clear, pale yellow	31.5%	Liquid detergents and household cleaners, wet textile processing, emulsion polymerization, post stabilizer for emulsions.
Slurries	35K	35%	High	Pale yellow	31.5%	Drum-dried and spray-dried cleansing compounds, light and heavy duty liquid detergents.
FLAKES	DS	100%	Medium	Light, cream colored	90%	Industrial detergents, emulsifier, dry mixing with alkalies, air entraining agent.
	K	100%	High	Light, cream colored	90%	Industrial detergents, heavy-duty household detergents, emulsifier, dry mixing with alkalies.
	K Dense	100%	High	Light, cream colored	90%	Same as above.
	KX	100%	Medium	Light, cream colored	90%	Same as 35KX in dry form.
	KX Dense	100%	Medium	Light, cream colored	90%	Same as KX—except smaller particle size with increased density, air entraining agent.
BEADS	SK Bead	100%	High	White, free flowing	40%	Light-duty household detergents, dry mixing with alkalies.
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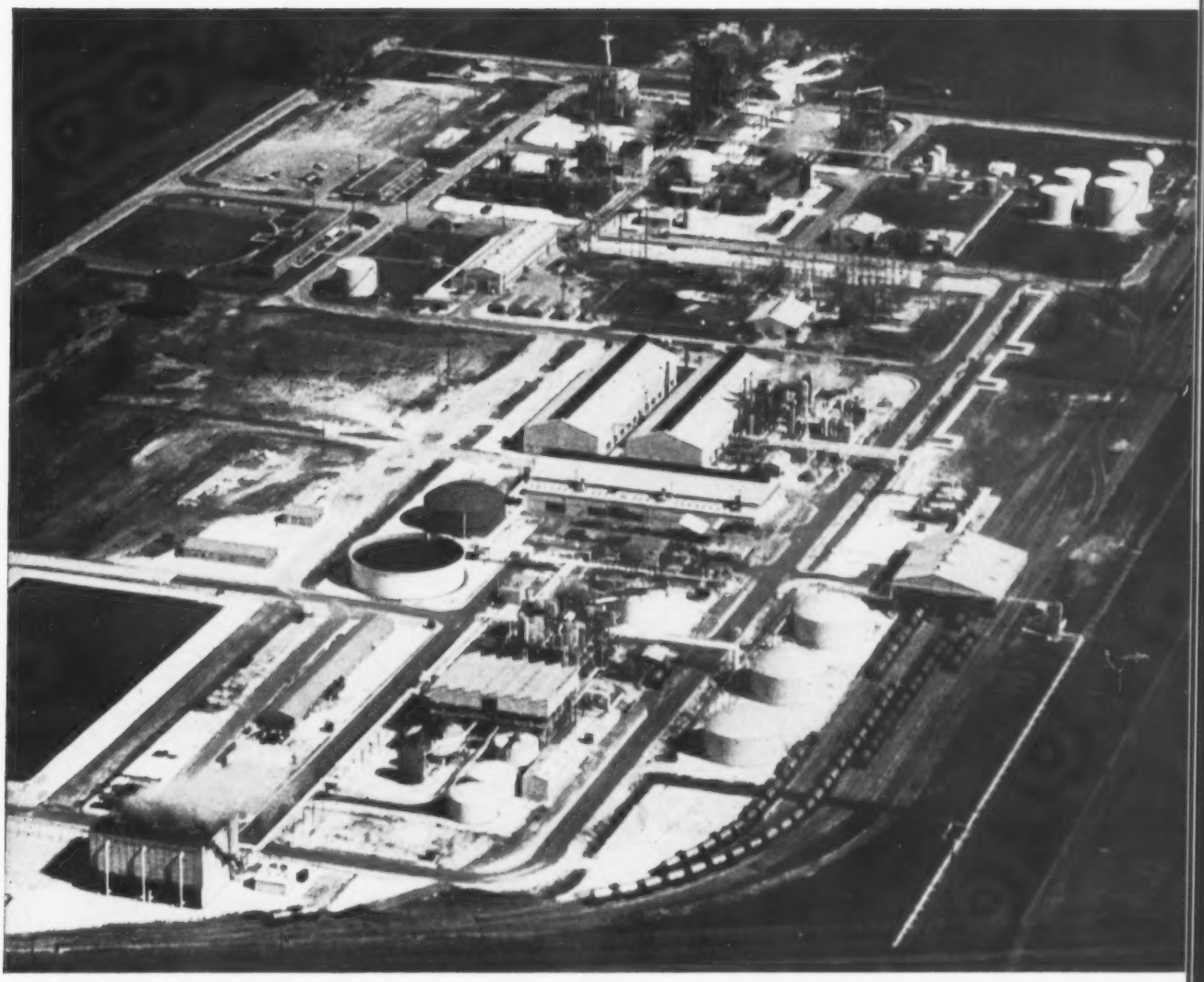

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4 Ask your supplier for the molecular weight, saponification value, for each shipment of fatty acid. Allied Chemical supplies the equivalent weight for each shipment of ethanolamine. With the figures right there, you can calculate the charge quickly and accurately.

5 Start with *di*ethanolamine if water solubility is important. The monoethanolamides are better foam stabilizers, but are less soluble.

6 Keep the temperature down if you substitute fatty oils (glycerides) for the acids since the higher temperature will distill off glycerine. To prevent localized overheating, use steam in preference to a gas flame as the heat source.

7 Use the methyl esters of the fatty acids when you can. You'll get purer condensates.

8 Make provision for good agitation and constant water removal during heating period.

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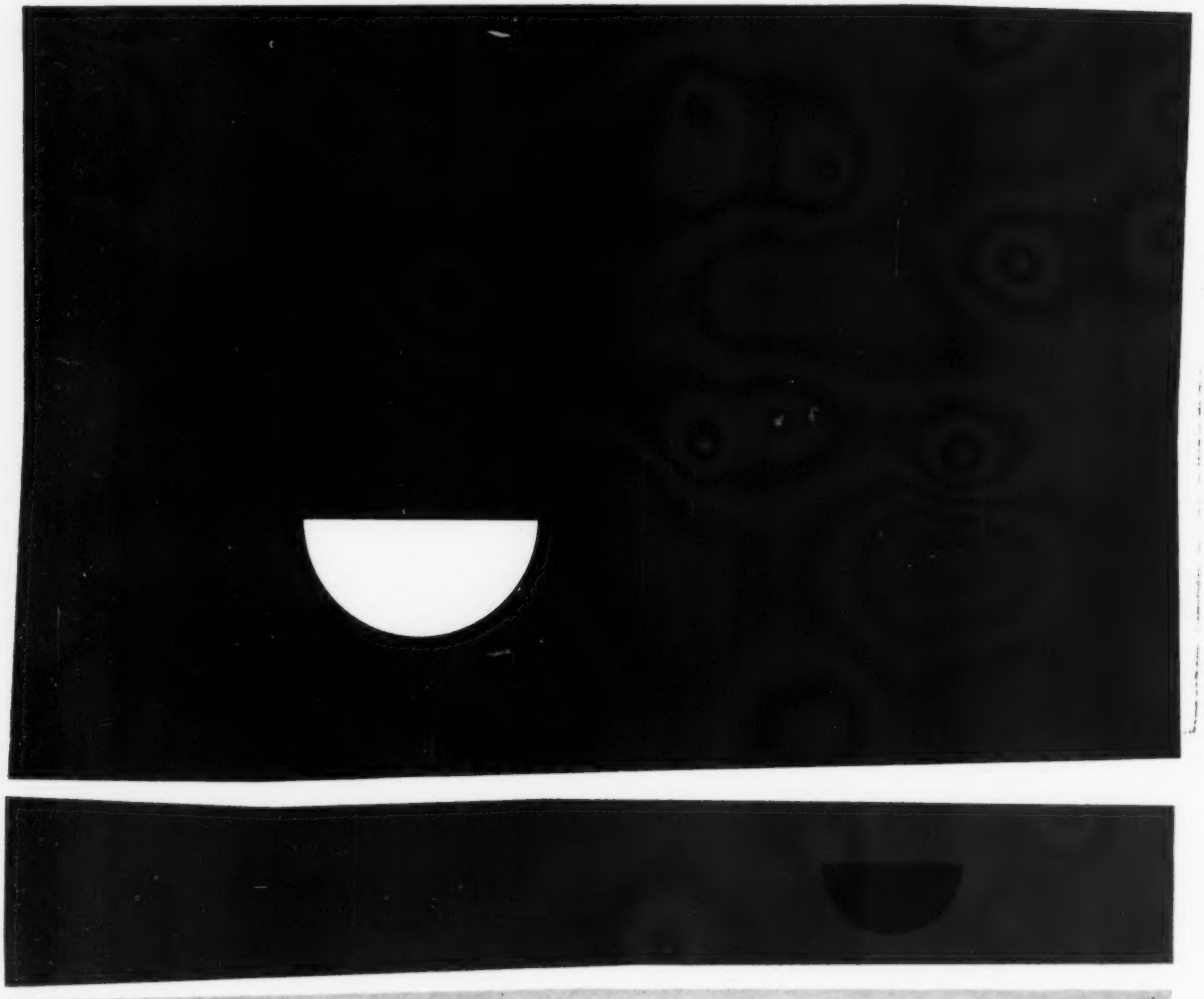

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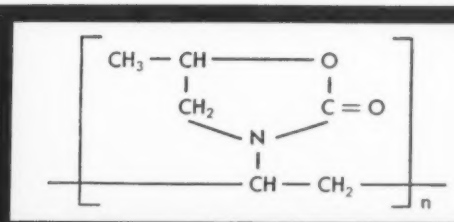

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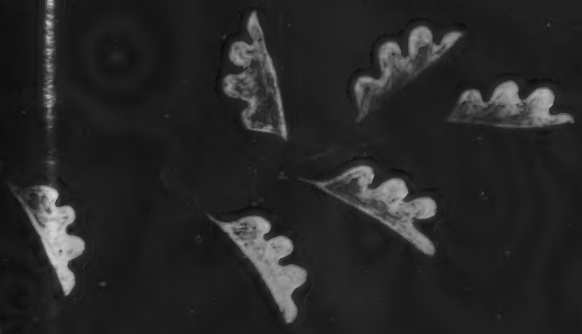

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Progress in Insect Control

By W. C. McDuffie,

Entomology Research Division,
Agricultural Research Service,
U. S. Department of Agriculture

FOR centuries man was acutely aware of insect annoyance, and suspected that certain species were responsible for the spread of diseases. Yet no one succeeded in incriminating them until 1878, when Sir Patrick Manson proved that *Culex quinquefasciatus* Say was the vector of filariasis (*Wucheria bancrofti* (Cobbold)). This finding opened up a new field of medical entomology, and led to the discovery that malaria and yellow fever were transmitted by mosquitoes, Rocky Mountain spotted fever by ticks, trypanosomyiasis by tsetse flies, typhus by human lice, plague by fleas, and enteric diseases by flies and roaches.

These are only a few of the better known associations between diseases and insects. There are scores of others, and new associations are being found from time to time. However, many species of insects, ticks, and mites not known to transmit human diseases are of concern because of the annoyance they cause. Control of both vector and pest species is therefore important from the standpoint of the health and comfort of the general public.

The Egyptians, Greeks, and Romans, attempted to protect themselves from annoying insects but their efforts were not very effective. Man made little progress in this direction until late in the 19th century. The first real advance in the control of a medically important insect was L. O. Howard's discovery of the effectiveness of kerosene as a mosquito larvicide. Then Walter Reed and others demonstrated that the yellow-fever mosquito (*Aedes aegypti* (L.))

could be eliminated by destroying its breeding sites. During the period from 1900 to 1942, some progress was made in controlling various insects affecting man, but no panaceas were discovered.

This paper reviews the importance of various insect species and the status of their control during these years. We believe this approach points out the significance of the discovery of DDT in 1942, and the new developments since that time.

House Flies

The control of house flies (*Musca domestica* L.) has always been difficult. Progress has been made from time to time, but good sanitation,—the oldest recommendation, is still considered the first and most essential step. For a few years, DDT and other chlorinated hydrocarbons gave excellent control even where sanitation was neglected. However, by 1950 resistance to these materials had become widespread, and new insecticides were desperately needed for fly control in the United States and in many other countries.

Investigations by various agencies led to the discovery that organic - phosphorus compounds such as TEPP "Dipterex" (dimethyl 2,2,2-trichloro-1-hydroxyethylphosphonate), and parathion were highly effective against resistant flies. However, none of these compounds possessed long-lasting residual properties, and it became necessary to find a means of utilizing their high toxicity to flies. As a result, several liquid and granular bait formulations were developed, which were highly effective. Cotton cords impregnated with parathion hung from ceilings or rafters in buildings also provided good control for long periods in many places.

The development of baits and cords was hardly completed when malathion and Diazinon (*0,0*-diethyl *0*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate) were found to be effective as residual treatments and also as bait toxicants. Both were soon in wide use by one or both methods and, in general, provided excellent results. However, by 1958 flies in many areas had become resistant to malathion. Some loss of effectiveness with "Diazinon" was indicated in 1958 and 1959, but apparently it is still giving satisfactory control as a residual treatment and cord-impregnant over much of the country. Ronnel (Korlan), first recommended in 1958, is also giving excellent results by both methods. This year, a new insecticide, "Dibrom" (1,2-dibromo-2,2-dichloroethyl dimethyl phosphate), has been recommended for use as a wet spray. It is an extremely good fly killer, but is not very long-lasting. At present, there are no highly promising new residual materials on the horizon. Better ones are badly needed.

"Dipterex," "Diazinon," DDVP, ronnel, and malathion are all recommended as bait toxicants. In some areas malathion is no longer effective, but the others apparently are giving good results. "Dibrom" and "Dimetilan" are the most promising new bait toxicants. One of them may prove an adequate replacement if materials now in use decline in effectiveness.

In summary, insecticides now available apparently can be relied upon, through one use or another, to maintain satisfactory control of flies in 1960. However, there are indications that some of the materials may show a decided decline in effectiveness, and that substitutes or combinations of materials or new ways of control will be urgently needed before very long. Researchers in industry and government must produce such materials soon, or we could be in trouble in a couple of years and conceivably as early as 1961.

Mosquitoes

The discovery in 1897 that *Anopheles* mosquitoes transmitted malaria gave birth to the idea of mosquito control. It was already known that kerosene was an effective larvicide, and that drainage of swamps, ponds, and low areas subject to flooding minimized or eliminated mosquito breeding. These measures were being employed in a few areas of the United States as early as 1900, but were not used widely for more than 20 years.

The development of Paris green as an anopheline larvicide by M. A. Barber and T. B. Hayne in 1921 gave great impetus to mosquito control during the 1920's. At the outset of World War II, Paris green and oil were still the standard larvicides.

As early as 1900, pyrethrum and sulfur were burned in homes to kill adult mosquitoes. It was nearly 20 years before pyrethrum sprays came into general use, but they contributed materially to the reduction in malaria rates in the United States and later in India. However, pyrethrum was too expensive for large-scale outdoor control operations.

The discovery of DDT in 1942 ushered in a new era of mosquito control. It was a superior larvicide and adulticide at a dosage of only 0.2 pound per acre. Applied by airplane over large areas, it brought serious mosquito outbreaks promptly under control. In addition, residual treatments in homes killed adult mosquitoes resting on the surfaces, thereby breaking the chain of transmission of malaria and other diseases. Its all-around effectiveness in the United States encouraged the initiation of malaria eradication campaigns in numerous other countries of the world. Unfortunately, by 1950 resistance had developed in several important *Anopheles* vectors of malaria. Lindane (or gamma BHC) and dieldrin were found to be effective against the DDT-resistant species, but resistance soon developed in areas where they were used intensively. It was therefore necessary to find new materials for mosquito control, and research produced the organic-phosphorus insecticides.

In California, the organic-phosphorus compounds EPN, par-

Hand applicator for use with "Dri-Die Insecticide 67" developed by W. R. Grace & Co. Davison Chemical Division. Nozzle shown can be replaced with device for laying a strip of powder which avoids general dusting.

athion, and malathion proved to be effective, and soon were in general use as larvicides. In Florida, malathion gave excellent control especially of adult mosquitoes. After several years of intensive use in California, larvae of *Culex tarsalis* Coq. developed a high resistance to malathion, but parathion provided effective control. Some resistance has now developed to parathion, but it is still effective at only 0.1 pound per acre.

In Florida no resistance to malathion has developed; so it is the insecticide of choice in this state for adult mosquito control. In fact, aerial and ground applications of malathion sprays and fogs are giving better control than was ever obtained with DDT or lindane. Its use as a larvicide has been discouraged, and this has undoubtedly delayed the development of resistance.

Recent research has produced a number of new insecticides of exceptional promise for the control of mosquitoes. "Bayer 29493" (*0,0*-dimethyl *0*-(4-methylthio-*m*-tolyl) phosphorothioate, also called "Baytex") and "Dibrom" have given outstanding control of both adults and larvae. "Bayer 29493" and malathion have also shown promise as residual treatments and one or both may be useful in the world-wide campaign to eradicate malaria. However, the most significant news in mosquito control is not the development of new super insecticides, but the widespread reemphasis on elimination of breeding areas. Formerly this meant ditching, draining, and filling. Such methods are now referred to as "source reduction," but this is simply a new designation for old basic procedures.

Another significant development is a special Paris green formulation for use against culicine mosquitoes. For years this insecticide was employed only as a dust and was effective against anopheline but not culicine larvae. Recently researchers at the Florida State Board of Health Laboratory at Vero Beach developed a granular formulation consisting of Paris green, calcium carbonate, emulsifiable oil, and vermiculite, which is highly effective as a culcinine. This formulation is being used widely in Florida.

Cockroaches

Cockroaches are the most common of all household pests. They destroy food and damage book bindings, fabrics, and other materials. Many filth organisms, including food-poisoning *Salmonella* species, are spread by them. Probably more effort and money are spent in cockroach control than on all other household pests combined.

Sodium fluoride and pyrethrum were the standard materials for roach control until the chlorinated hydrocarbon insecticides became available after World War II. They were soon almost entirely supplanted by chlordane, dieldrin, and lindane. Chlordane was remarkably effective against all species of cockroaches and provided long-lasting control when properly applied. Unfortunately, within a few years the German cockroach (*Blatella germanica* (L.)) became resistant to it; so new insecticides had to be found. Chlordane, dieldrin, and lindane apparently are still effective against other species, although there have been reports that they are not as effective as formerly.

Most of the organic-phosphorus insecticides have been found to be highly effective against all species of cockroaches. Malathion was the first to come into general use. Subsequently, "Diazinon" was cleared and in many locations has now supplanted malathion. The two materials apparently are equally effective as sprays, but as dusts "Diazinon" is better. Ronnel (Korlan) and dicapthon are also approved for roach control, but the latter material sometimes discolors surfaces.

Recently, much publicity has been given to the effectiveness of silica gel dusts. These materials kill by desiccation, and are reported to give excellent control under certain conditions. However, they apparently do not possess the all-around effectiveness or residual properties of "Diazinon" and other insecticides.

None of the insecticides now used for roach control is as good as chlordane was in the beginning. The search for more effective materials is therefore continuing.

Bed bugs are often called cosmopolitan pests, which means they have no respect for social

(*Turn to Page* 117)

Figure A
Homogeneous Vinyl Tile No. 5
After total traffic exposure of 16 weeks. (Semi-elliptical areas received equal scrubbing. Other areas were damp mopped but not scrubbed.)

Figure B
Rubber Tile No. 10.
After total traffic exposure of 16 weeks. (Semi-elliptical areas received equal scrubbing. Other areas were damp mopped but not scrubbed.)

Figure C
Roto Vinyl Sheet No. 8.
After total traffic exposure of 16 weeks. (Semi-elliptical areas received equal scrubbing. Other areas were damp mopped but not scrubbed.)

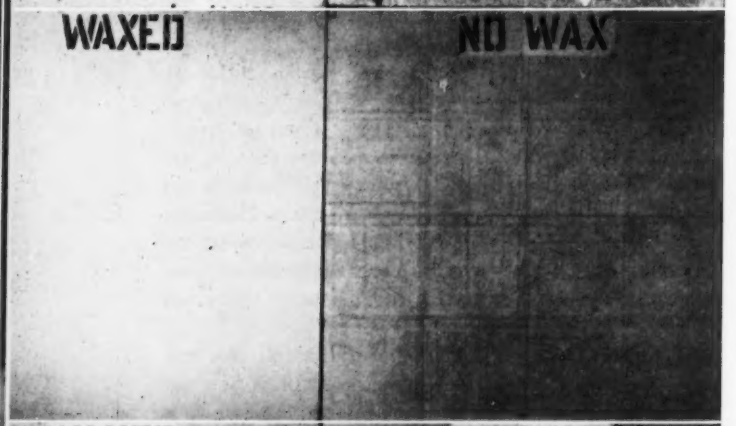


Figure D
Homogeneous Vinyl Tile No. 6.
After total traffic exposure of 16 weeks. (Damp mopped but not scrubbed.)

Figure E
Vinyl Asbestos Tile No. 4.
After total traffic exposure of 16 weeks. (Damp mopped but not scrubbed.)

Waxing

By Walter J. Hackett

THE initial change in gloss on application of floor wax to the scrubbed floor coverings prior to any exposure to traffic is shown in Table I. The maximum change in gloss is an increase of about five times for rubber tile. One of the two homogeneous vinyl tiles, No. 6, shows the minimum change in gloss, with practically no increase for the solvent base wax C and a 30% increase for wax A. It is interesting to note that the other homogeneous vinyl tile, number 5, has markedly less gloss originally; after waxing gloss increased by 3 to 4 times. It is clear from inspection of the results that waxing does enhance the beauty of floor coverings by increasing the gloss on the average of from two to four times.

Maintenance of gloss during service: The relative gloss of the floor covering surface, with and without wax applied, after exposure to traffic or floor service intermittently in cycles of two weeks, for 3, 5 and 8 cycles, is shown in Table II. The condition represented is at the end of the last cycle of exposure and after damp mopping to remove loose surface dirt and following light buffing of the buffable waxes B and C. These data answer the question of how well does the gloss of the floor covering stand up after prolonged service.

The extent to which the original gloss of the floor covering degrades when no wax is used can be readily seen by comparing the

*Paper presented during 46th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago, May 18, 1960.

Enhances Floors

and Cyril S. Kimball*, Foster D. Snell, Inc. New York

Part II

last two columns of data at the extreme right of Table II. The greater loss of original gloss is with homogeneous vinyl number 6, a drop from 52 to 18 units per mil. It will be noted that the gloss of at least one of the waxed panels of this same floor covering is equal to or higher than the original before waxing. Further inspection of the results for the other 10 floor coverings reveals that in every case the waxed panels show a higher gloss than the original panels before waxing and the unwaxed panels show a marked loss of gloss.

A comparison of the gloss figures of the waxed versus the unwaxed panels after 16 weeks of traffic (8 cycles) shows the waxed panels range from a low of twice as much gloss for wax C on vinyl 6 to a high of 12 times more gloss for wax B on rubber 10. In general, it will be seen from Table II that floor coverings maintained by regular waxing can be expected to show 3 or 4 times higher gloss at the end of a normal service or exposure period and before cleaning but at a stage where cleaning would normally be carried out.

Resistance to soiling during service: Ingrained dirt and heel marks make floor coverings, particularly the light colored floorings, look unsightly. Accumulation of soil on floor surfaces lowers light reflection or brightness. The average reflectance measurements shown in Table III represent the condition of panels at the end of the last two weeks' cycle of service, that is, after damp mopping and following buffing of waxes B and C. Panels are soiled and would normally be scrubbed at this point. Panels had been intermittently exposed to 3, 5 and 8 cycles of two weeks as indicated.

Again, here, if we compare the data shown in the two columns at the extreme right of Table III, loss of brightness of unwaxed floor coverings after 8 cycles is seen. White linoleum 11 shows the maximum loss with a reading of 55 before waxing or exposure and 34 after service. This is a loss of 38%. The comparable figures for the waxed panels show much less loss of brightness, with all three waxes showing an average of about 50. This is a loss of just under 10%. With rubber tile the comparative loss is 32% for the un-

Table I. Initial gloss improvement prior to exposure to traffic

Floor Covering	Glossmeter Gloss Per mil 60° Waxed			No Wax
Floor wax:	A	B	C	
Asphalt tile 1	56	51	—	18
Asphalt tile 2	48	48	—	15
Vinyl asbestos tile 3	44	44	—	16
Vinyl asbestos tile 4	46	45	—	18
Homogenous vinyl tile 5	68	67	45	16
Homogenous vinyl tile 6	65	60	53	52
Backed vinyl sheet 7	51	48	45	25
Roto vinyl sheet 8	67	54	46	20
Roto vinyl sheet 9	63	51	49	26
Rubber tile 10	59	62	—	12
Linoleum sheet 11	25	23	18	6

Conditions

Floor coverings cleaned with solution of soap and ammonia.
Two coats of Wax A, B or C applied.
Wax B and C buffed after drying.
Gloss measurements made according to standard pattern along two axis in center of panels.

Figure F (top). Backed Vinyl Sheet No. 7. After total traffic exposure of 16 weeks. (Damp mopped but not scrubbed.)
Figure G (lower photo). Roto Vinyl Sheet No. 9. After total traffic exposure of 16 weeks. (Damp mopped but not scrubbed.)

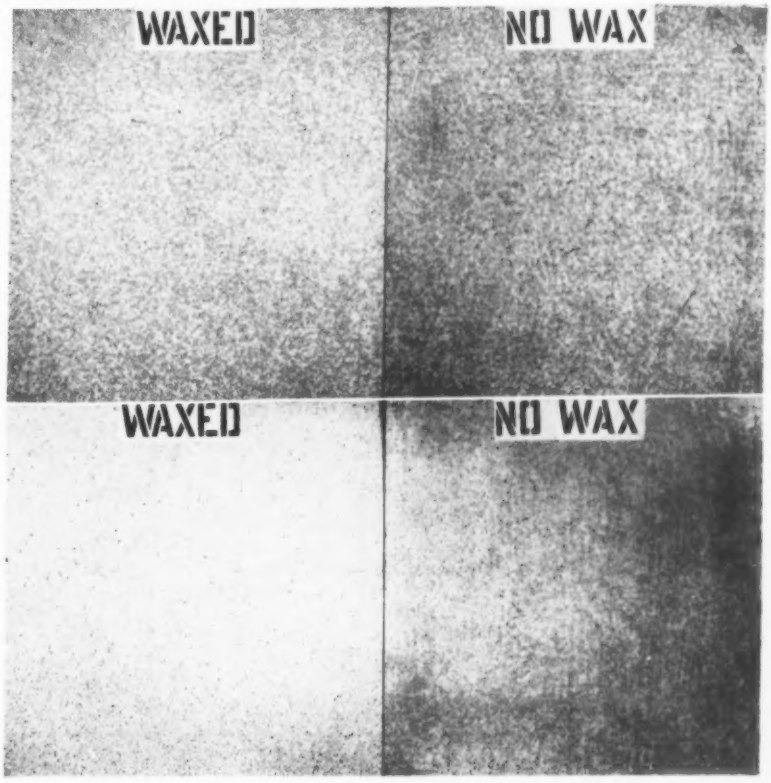


Figure H. Asphalt Tile No. 1. After total traffic exposure of 16 weeks. (Damp mopped but not scrubbed.)

waxed tile and only about 2% for the waxed tile.

In all cases the waxed floor coverings exhibit dramatic superiority over the unwaxed coverings in maintenance of brightness or resistance to soiling. The advantage of using floor wax from the standpoint of maintenance of cleaner, brighter appearing floor coverings is best appreciated by inspection of the photographs appended to this report.

Protection against surface scratching and dulling: To obtain information relative to the protective effect of waxing floor coverings, measurements were made of gloss and reflectance after thoroughly scrubbing and stripping the panels of all removable dirt and wax film. Gloss readings of the stripped and cleaned flooring surfaces after 3, 5 and 8 cycles of traffic exposure are given in Table IV.

It is quite apparent from the table that there is greater gloss retention or, to put it differently, less degradation of the original gloss of the floor covering surfaces where floor wax has been used. Homogeneous vinyl 6 and backed vinyl 7

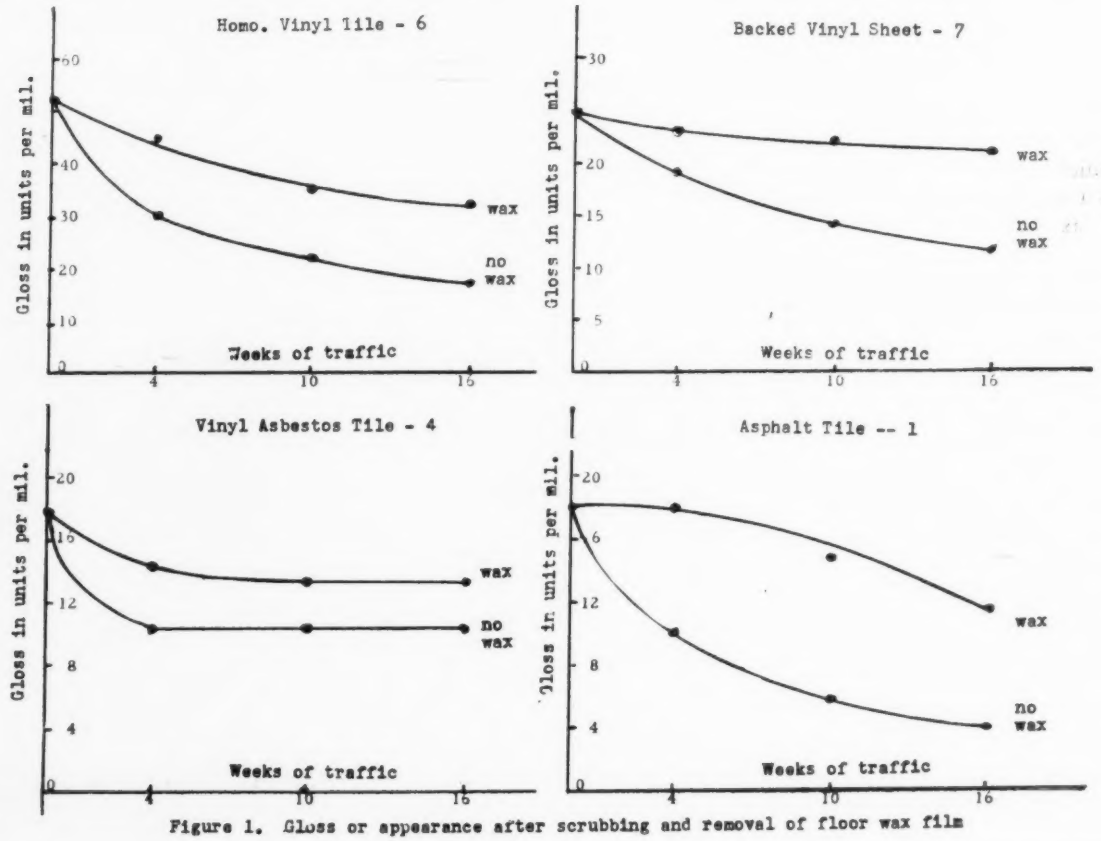


Figure 1. Gloss or appearance after scrubbing and removal of floor wax film

offer striking and illustrative examples of the advantages to be gained by the use of floor wax. Differences in extent of surface scratching on these panels were obvious by visual inspection. After 16 weeks of total exposure to traffic unwaxed vinyl 6 showed a drop in gloss of from 52 to 17—a 66% loss, whereas waxed panels showed only about one-half as much loss. With backed vinyl 7, after 16 weeks' exposure unwaxed panels showed an average retention of original gloss of 80-85%, while the unwaxed panel showed only 48% retention.

The percentage gloss retention of cleaned panels which received no wax during the test ranged from 22% to 63%, while panels which were waxed retained from 55% to 98% of the original gloss. A graphical presentation of the data in Table IV is shown for four different floor coverings, namely homogeneous vinyl 5, backed vinyl 7, vinyl asbestos 4 and asphalt tile 1, in Figure 1. Curves for the waxed surfaces represent average values for all three types of floor wax. It is clear that the use of floor wax affords a means of protecting floor coverings from a loss of gloss due to scratching and dulling of the surface.

During the initial period of exposure to traffic reflectance readings of cleaned and stripped panels showed little difference in reflectance between waxed and unwaxed panels. With continued exposure to traffic it became apparent from inspection of cleaned and stripped panels that there were differences in the extent to which dirt was becoming embedded in pores and scratches of floor covering surfaces. In Table V we show the original reflectance readings of the panels before any exposure and similar readings after 16 weeks or 8 cycles of total exposure to traffic for the waxed and unwaxed panels.

It is of interest to note that in almost every case waxed panels have maintained practically their original reflectance value, whereas unwaxed panels show an appreci-

Table II. Maintenance of gloss during service
(Appearance after exposure to traffic)
Gloss mil 60° Glossmeter

	6 weeks traffic				10 weeks traffic				16 weeks traffic				Before
Wax:	A	B	C	None	A	B	C	None	A	B	C	None	Waxing
Floor Covering													
Asphalt 1	45	43	—	10	45	40	—	5	31	39	—	5	18
Asphalt 2	41	42	—	12	39	40	—	10	40	40	—	10	15
Vinyl asbestos 3	38	34	—	14	37	32	—	11	32	30	—	10	16
Vinyl asbestos 4	40	39	—	15	38	39	—	13	30	32	—	12	18
Homog. vinyl 5	51	49	40	13	50	47	33	19	49	45	25	8	16
Homog. vinyl 6	56	55	42	27	51	52	40	20	48	53	37	18	52
Backed vinyl 7	40	39	37	17	38	36	35	13	33	34	28	9	25
Roto vinyl 8	43	42	35	11	44	40	31	10	39	30	29	9	20
Roto vinyl 9	55	49	44	16	52	48	44	12	47	44	40	12	26
Rubber 10	47	53	—	7	45	50	—	5	45	49	—	4	12
Linoleum 11	20	19	14	4	19	18	14	3	18	17	10	2	6

Conditions
Panels exposed to traffic in cycles of 2 weeks, with cleaning and stripping after each 2 week cycle, followed by rewaxing.
Represents average gloss after total exposure shown in Table; after damp mopping and buffing Wax B and C; and just prior to cleaning and stripping.

Table III. Reflectance measurements after exposure to traffic
(Resistance to soiling)
Gardner 45° Reflectance Meter

	6 weeks traffic				10 weeks traffic				16 weeks traffic				Before
Wax:	A	B	C	None	A	B	C	None	A	B	C	None	Waxing
Floor Covering													
Asphalt 1	37	35	—	34	36	35	—	32	36	35	—	30	37
Asphalt 2	45	44	—	40	44	43	—	40	43	43	—	39	49
Vinyl asbestos 3	63	60	—	59	63	61	—	58	62	61	—	54	64
Vinyl asbestos 4	53	51	—	50	52	52	—	48	53	52	—	48	57
Homog. vinyl 5	75	73	70	55	71	70	68	63	73	73	69	62	77
Homog. vinyl 6	75	74	70	70	74	73	70	66	74	73	70	63	80
Backed vinyl 7	50	49	46	45	51	50	45	42	51	49	46	41	53
Roto vinyl 8	49	46	46	46	48	45	46	41	48	44	43	39	50
Roto vinyl 9	58	57	52	50	59	58	52	49	59	58	51	47	60
Rubber 10	55	55	—	49	55	54	—	42	54	55	—	38	56
Linoleum 11	50	51	44	40	51	51	43	36	51	51	47	34	55

Conditions
Panels exposed to traffic in cycles of 2 weeks, with cleaning and stripping after each 2 week cycle, followed by rewaxing.
Represents average reflectance after total exposure shown in Table! after damp mopping and buffing Wax B and C; and just prior to cleaning and stripping.

Table IV. Gloss or appearance after stripping and cleaning
(Protection from scratching)
Gloss/Mil, 60° Glossmeter

	6 weeks traffic				10 weeks traffic				16 weeks traffic				Before
Wax:	A	B	C	None	A	B	C	None	A	B	C	None	Waxing
Floor Covering													
Asphalt 1	18	18	—	10	15	14	—	5	12	11	—	4	18
Asphalt 2	14	13	—	9	14	12	—	9	13	11	—	9	15
Vinyl asbestos 3	15	14	—	11	13	14	—	11	12	13	—	10	16
Vinyl asbestos 4	14	15	—	11	13	14	—	11	14	14	—	11	18
Homog. vinyl 5	14	14	11	8	12	11	12	8	12	11	10	6	16
Homog. vinyl 6	47	45	42	30	38	38	30	22	35	33	29	17	52
Backed vinyl 7	24	23	22	19	23	21	21	14	22	21	20	12	25
Roto vinyl 8	15	16	14	10	11	12	12	9	11	11	11	8	20
Roto vinyl 9	19	19	17	11	17	17	16	11	15	14	16	11	26
Rubber 10	12	12	—	7	11	12	—	3	11	10	—	3	12
Linoleum 11	5	5	5	3	4	5	4	2	4	4	4	2	6

Conditions
Panels exposed to traffic in cycles of 2 weeks, with cleaning and stripping after each 2 week cycle, followed by rewaxing.
Represents average gloss after total exposure shown in Table; after stripping and cleaning—all wax removed—and just prior to rewaxing.

able drop in reflectance. It is also apparent from the data, and this was confirmed by visual observation of the panels, that solvent base wax C gives little, if any, protection against ingraining of dirt on the homogeneous vinyl floor coverings.

The differences between the panels maintained by waxing and the unwaxed panels are best appreciated by the photographs appended to this report. Several of the panels in the photographs have been so arranged to show semicircular areas, which have been cleaned by hand scrubbing under equal conditions, with waxed and unwaxed panels adjacent to each other. Visual observations of all panels clearly showed that waxing of these floor coverings offers a good measure of protection against surface scratching and ingraining of dirt in pores and surface abrasions.

Enhancement of appearance by continued wax maintenance: Table VI shows gloss measurements after regular maintenance with and without waxing at various intervals of 3, 5 and 7 cycles of traffic exposure. These data indicate the appearance of the floor coverings as judged by gloss, after cleaning and stripping all removable dirt and wax film and then applying a fresh coating of wax to the panels so maintained. They represent the appearance of the floor covering as they would exist after months of service with and without waxing. The attempt is to restore to the floor covering its original appearance.

A comparison of the data after 7 cycles or 14 weeks total traffic exposure with the data before any exposure to traffic shows the difference to be expected when the surfaces are waxed or not waxed. Unwaxed asphalt tile 1, homogeneous vinyl 5 and 6, rubber tile 10 and linoleum 11 show the greatest loss of gloss. The waxed panels show some loss of gloss, as is to be expected, but this loss is far less than for the unwaxed panels. The superior appearance of the waxed panels, as judged by gloss, is indeed so marked as to be outstanding. Figure II is a bar graph depicting the gloss of waxed and unwaxed panels for four different types of floor coverings.

Appended to this report are two tables, A and B, of observations made on the floor covering panels, as follows:

Table A—After the 8th two week cycle of traffic exposure panels damp mopped and buffable waxes B and C buffed, but prior to cleaning and stripping.

Table B—After the 8th two week cycle of traffic exposure, panels stripped and cleaned free of removable dirt and wax film.

Table V. Reflectance after stripping and cleaning
(Protection against ingrained dirt)
Reflectance 45° Gardner Reflectometer

Wax:	Before exposure to traffic	16 weeks traffic			
Floor Covering		A	B	C	No wax
Asphalt tile 1	37	37	35	—	32
Asphalt tile 2	49	44	44	—	42
Vinyl asbestos tile 3	64	64	64	—	61
Vinyl asbestos tile 4	57	56	53	—	50
Homogeneous vinyl tile 5	77	75	72	70	71
Homogeneous vinyl tile 6	80	79	78	74	73
Backed vinyl sheet 7	53	52	52	51	48
Roto vinyl sheet 8	50	49	49	49	45
Roto vinyl sheet 9	60	60	58	58	55
Rubber tile 10	56	55	55	—	49
Linoleum sheet 11	55	52	53	50	48

Conditions
Panels exposed to traffic in cycles of 2 weeks, with cleaning and stripping after each 2 week cycle, followed by rewaxing.
Represents average reflectance after 8 cycles or 16 weeks total exposure after stripping and cleaning—all wax removed—just prior to re-waxing.

Photographs of various panels after the last two week traffic cycle (16 weeks total exposure) and following damp mopping and buffing of wax B and C, as listed below, are appended.

Figure A—Homogeneous Vinyl Tile — 5 — with and without waxing. Also shows areas receiving equal scrubbing.

Figure B—Rubber Tile — 10—with and without waxing. Also shows areas receiving equal scrubbing.

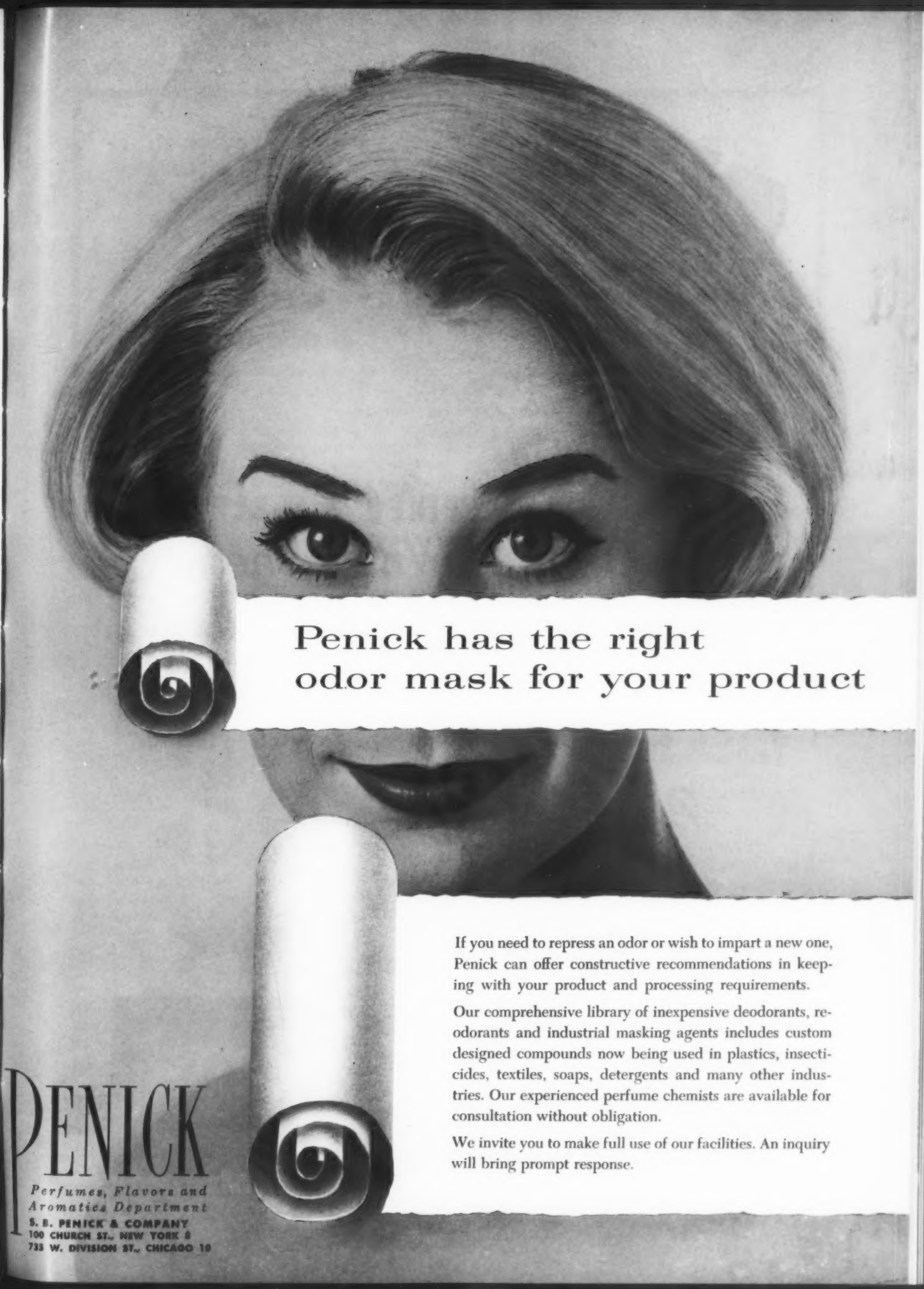
Figure C—Roto Vinyl Sheet — 8 — with and without wax-

(*Turn to Page* 125)

Table VI. Gloss or appearance after regular maintenance with and without waxing
Gloss/Mil, 60° Gardner Glossmeter

Wax:	6 weeks traffic				10 weeks traffic				14 weeks traffic				Before exposure to traffic			
Floor Covering	A	B	C	None	A	B	C	None	A	B	C	None	A	B	C	None
Asphalt 1	55	50	—	10	52	48	—	5	50	45	—	3	56	51	—	18
Asphalt 2	47	48	—	14	43	46	—	11	40	45	—	10	48	48	—	15
Vinyl asbestos 3	43	42	—	14	40	40	—	12	40	39	—	11	44	44	—	16
Vinyl asbestos 4	46	44	—	16	45	42	—	13	43	40	—	11	46	45	—	18
Homog. vinyl 5	61	59	42	14	58	56	41	11	55	54	42	7	68	67	45	16
Homog. vinyl 6	65	60	53	30	63	58	53	24	60	58	50	17	65	60	53	52
Backed vinyl 7	48	46	41	16	45	45	40	14	44	40	36	12	51	48	45	25
Roto vinyl 8	64	54	43	12	60	52	42	11	53	48	42	9	67	54	46	20
Roto vinyl 9	60	51	45	18	58	50	43	13	53	47	43	12	63	51	49	26
Rubber 10	57	60	—	8	56	60	—	5	52	57	—	3	59	62	—	12
Linoleum 11	23	21	17	4	20	19	15	3	21	21	15	2	25	23	18	6

Conditions
Panels exposed to traffic in cycles of 2 weeks, with cleaning and stripping after each 2 week cycle, followed by rewaxing.
Represents average gloss after total exposure shown in Table immediately after waxing but before re-exposure to traffic.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AEROSOL GERMICIDES

A procedure for evaluation of germicidal activity of aerosols intended for disinfection of surfaces

By Eleanore S. Wright and Robert F. Prindle,
Research and Development Laboratories
Lehn & Fink Products Corp.
Bloomfield, N. J.

AN aerosol which is to be used for surface disinfection must have the capacity to kill the bacteria encountered on surfaces on which it is to be used. The number of bacteria found on these surfaces will play an important role in the disinfection process. In order to determine the surface contamination likely to be encountered, typical surfaces were sampled for their bacterial population. The following counts were obtained from telephones, door knobs and toilet seats.

Surface	Colony Counts
Door knobs	101
	270
	135
	2900
	1450
Average 971	
Telephones—	
Mouthpiece	1520
	2410
	1220
	1350
	25
Average 1565	
Toilet Seats—	
(½ of seat)	17,010
	23,940
	13,230
	2,810
	37,800
Average 18,958	

With these test objects, it was apparent that the maximum load was less than 500 bacteria per square inch.

Any test used in the laboratory to determine the effectiveness of a germicide has traditionally used much larger numbers of microorganisms than are found in actual practice. This assures a margin of safety in the disinfection process. Our objective was to contaminate a surface, which could be easily sampled after disinfection, with large numbers of pathogenic microorganisms of the type which might be encountered on naturally contaminated surfaces. Different types of microorganisms were selected for the test program, a gram-negative bacillus, a gram-positive coccus, an acid-fast bacillus, and a pathogenic fungus.

Test Cultures Preparation

Wherever possible, cultures used were those recommended in the Official Methods of Analysis of the Association of Agricultural Chemists (1) for disinfectant testing. Forty-eight hour broth cultures of *Staphylococcus aureus* (A.T.C.C. 6538) and *Salmonella choleraesuis* (A. T. C. C. 10708) grown in AOAC broth were used. The fungus culture of *Tricophyton interdigitale* (Strain No. 640) contained 500 million spores per ml. and was prepared according to directions in the A.O.A.C. Mycobacterium smegmatis (A.T.C.C. 607) was used as the acid-fast microorganism. This was grown as a pellicle on AOAC broth plus five per cent glycerine for five days, the pellicle removed, suspended in 0.85 per cent sodium chloride, broken by shaking with glass beads and diluted to the opacity of a LaMotte Turbidity Standard —500.

Media

For determination of surviving microorganisms after exposure to the aerosol the following nutrient agars and broths were used:

S. aureus and *S. choleraesuis:* AOAC nutrient agar and broth with a suitable neutralizer; one per cent "Tween 80"* for phenolics (2), lecithin for quaternaries (1) and 10 per cent serum for unknowns.

T. interdigitale: AOAC nutrient fungi agar and broth with one per cent "Tween 80" for phenolics and lecithin for quaternaries. Serum was not used in these tests as it seemed to have an inhibitory effect on the growth of this culture.

M. Smegmatis: Dubos (modified (3)

2 g. Sheffield hydrolyzed casein (N-Z Case)
6.3 g. Dibasic sodium phosphate
1 g. Monobasic potassium phosphate
1.5 g. Sodium citrate
2 g. Difco yeast extract
5 g. Glucose
15 g. Agar
1 liter Water
pH 7.2

Autoclave for 30 min. at 15 lbs.

When pouring plates, 10 per cent bovine serum was added.

AOAC nutrient broth plus five per cent glycerine and 10 per cent serum was used. No other

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neutralizers were used when testing with *M.smegmatis*.

Test Procedures

Method 1. An area one inch square was marked in the center on the outer surface of the bottom of petri plates. Ten such plates were prepared. A 0.01 ml. sample of the culture to be tested was placed on the inner surface of the bottom of the petri plate and spread to cover the marked off one inch square. The covered petri plates were placed in the incubator for one hour at 37°C. to allow the culture to become thoroug'hly dry. The plates were placed on a horizontal surface and the aerosol applied to the contaminated area according to the directions given on the label, usually three seconds, with the can held six to 12 inches from the target. After a 10-minute contact period, the excess liquid was withdrawn with a pipette (to obviate bacteriostasis) and 20 ml. of suitable nutrient agar was poured into the plate. The test area was scrubbed with a rubber scraper to mix the viable organisms evenly throughout the culture plate. Plates were incubated for 48 hours (seven days for fungi and *Mycobacteria*) and colony counts made. All plates which showed no growth at the end of the incubation period were restreaked with the test culture. If normal growth occurred in eight hours (five days for fungi and *Mycobacteria*), it was shown that no bacteriostatis was present. If no growth occurred in eight hours (or five days), or if growth was lighter than normal, the tests were repeated using further precautions to eliminate bacteriostasis.

Method 2. Precautions with very bacteriostatic agents: When dealing with very bacteriostatic compounds for which no specific neutralizer is known, Method 1 did not suffice to eliminate bacteriostasis. A further step was taken which resulted in elimination of bacteriostasis with any aerosol yet tested. After the 10 minute contact period, the excess liquid was withdrawn as before. The 10 ml. of nutrient broth, containing the appropriate neutralizer, was poured into the plate and the test area scraped with a sterile rubber scraper. This broth was withdrawn with a pipette and a one ml. sample plated in the appropriate nutrient agar, the remainder of the broth was placed in a sterile test tube. Nutrient agar was poured into the tar-

(*Turn to Page* 122)

Table I. Germicidal Activity of Aerosols A, B, C

Sample	Method No.	No. of Surviving Microorganisms S. choleraesuis		S. aureus	
		Control	Test	Control	Test
A	1	276,350	0	3,420,000	6
			0		27
			0		0
			0		0
			38		0
			0		13
			25		2
			0		3
			0		3
			0		20
			0		0
B	1	252,000	0	2,600,000	0
			0		0
			0		2
			0		0
			0		0
			0		0
			0		0
			0		0
C	2	104,000	0	3,390,000	360
			40		390
			0		3150
			0		230
			20		5000
			30		1890
			0		4410
			140		2520
			66		420
			2		2020

Table II. Additional Germicidal Tests with Aerosol B

Sample	Method No.	No. of Surviving Microorganisms T. interdigitale		M. smegmatis	
		Control	Test	Control	Test
B	1	16,000	0		
			0		
			0		
			0		
			0		
			0		
			0		
			0		
			0		
			0		
B	1			55,000	0
					0
					0
					0
					0
					0
					0
					0
					0

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Epolene HDE	1500	455	0.956	1
Epolene LVE	1500	400	0.939	5
Epolene N	2500	2500	0.928	1
Epolene HD	1500	340	0.938	0.5
Epolene LV	1500	360	0.925	3
Epolene C	7000	16,000	0.907	7

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Accidental Child Poisonings

Aspirin and other medicines, not household chemical specialties, are the most commonly ingested substances in accidental poisonings.

By Matilda S. McIntire, M.D.*, and De Lanne Simmons, R.N.**

THE leading cause of death in the young child is accidents, and approximately five per cent of fatal accidents are caused by accidental poisoning.

As new products and drugs of all kinds are constantly coming into the market, accidental poisoning in the young child is a growing problem. The American Medical Association estimates that there are approximately 250,000 toxic trade products available.

Cann has aptly summed up the participants and situation involved: "The young 'mouth-exploring' child, his careless, unthinking, or uninformed parents and a seemingly innocent medicinal or household product" set the stage for accidental poisoning. (1) The physician is consequently confronted with the problem of treatment of accidental poisoning. Obviously, no one physician can be familiar with the constituents of the many products which children ingest. In addition, there are many substances, the action of which is known only to a few highly specialized toxicologists, chemists and physicians interested in a specific substance.

Thus, local poison control centers have been established throughout the country to help the physician deal with accidental poisoning. The first Poison Control Center was established in Chicago in 1953.

A survey of accidental poisoning cases was made in Omaha-Douglas County in 1956 by the Omaha-Douglas County Health Department and the National Foundation in conjunction with the Creighton University School of Medicine. During that year, 310 cases of accidental poisoning occurred of which 235 or 75 per cent were seen at the Childrens Memorial Hospital; 292 cases or 95.5 per cent involved children.

The Poison Control Center at the Childrens Memorial Hospital was officially opened in November 1957 and later became the master control center for the state of Nebraska. The Poison Control Center is sponsored by the Childrens Memorial Hospital, which maintains the treatment and information center, and the Omaha-Douglas County Health Department, which provides the follow-up visits by the public health nurses. Purpose of the visit is to investigate the epidemiology of accidental poisoning and to advise parents in safe living within the home.

The number of accidental poisoning cases seen at Childrens Memorial Hospital has increased each year:

Year	Cases
1957	356
1958	529

The year 1958 is the first completed year of operation of the Poison Control Center.

Table I. Cases of Accidental Poisoning — 1958
Poison Control Center — Childrens Memorial Hospital

	Total	Per cent
Substance		
Medicines	319	60.3
Pesticides	38	7.2
Cleaning, Polishing, Sanitizing Agents	72	13.6
Other	100	18.9
Total	529	100.0

Medicine leads the list of poisonous substances ingested, accounting for 60.3 per cent of the cases shown in Table I. This correlates with figures released from the National Clearinghouse, as reported by Cann and associates, showing that 50 per cent of the 1,000 cases reported from 29 Poison Control Centers were due to the ingestion of drugs. (2) Jacobziner of the New York Poison Control Center reports an even higher percentage, with 70 per cent due to drugs. (3)

Table II.

Age	Number	Per cent
Under 1	12	2.8
1	133	31.4
2	183	43.3
3	62	14.7
4	23	5.4
5 plus	10	2.4
Total	423	100.0

In March, 1958, the follow-up visit by the public health nurse was inaugurated at the Poison Control Center to investigate the epi-

*Director, Division of Preventable Disease Control, Omaha-Douglas County Health Department

**Assistant Director in Nursing Service, Visiting Nurse Association

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demiology of accidental poisoning and to advise parents in safe living within the home. The results of these 423 visits appear in Table II. These figures show that accidental poisonings occur most often in the one and two-year-old children. This is the toddler stage at which mouth exploring reaches its height.

Table III.

Sex	Number	Per cent
Male	244	57.7
Female	179	42.3
Total	423	100.0

The sex of the child is shown in Table III. Boys consistently get into more difficulties than girls. This is true not only for accidental poisoning but in all types of accidents.

Table IV.

Color	Number	Per cent
White	397	93.9
Negro	25	5.9
Other	1	0.2
Total	423	100.0

Table IV shows that no racial factor is involved according to population size and racial distribution. This is not true in some parts of the country, particularly in the South, where it has been shown that a negro child has a higher attack rate for accidental poisoning than does the white child.

Table V.

Place	Number	Per cent
Kitchen	158	37.3
Bedroom	84	19.9
Bathroom	79	18.7
Living room	47	11.1
Outdoors	21	4.9
Basement	14	3.3
Other	13	3.1
Garage	7	1.7
Total	423	100.0

The kitchen is the commonest place for accidental poisoning to occur, with bedroom and bathroom tied for second position. These are usually the most used rooms in the house but no area is exempt from accidental poisoning.

Table VI.

Supervision	Number	Per cent
Parents	357	84.4
Baby sitter	46	10.9
None	20	4.7
Total	423	100.0

Table VI shows that in most instances, the child is under the supervision of the parent at the time of accidental poisoning.

Table VII.

Substance	Number	Per cent
Medicines—		
Aspirin	148	35.0
Other	113	26.7
Multiple	10	2.4
Cleaning Agents	47	11.1
Pesticides	34	8.0
Petroleum distillates	27	6.4
Miscellaneous	22	5.2
Cosmetics	14	3.3
Mushrooms	5	1.2
Lead products	2	.5
Unknown	1	.2
Total	423	100.0

Drugs are the largest cause of accidental poisoning (See Table VII). Medication accounts for 35 per cent of the deaths in children from one to five years of age.

Table VIII.

Prescription	Number	Per cent
No	206	76.0
Yes	65	24.0
Total	271	100.0

Approximately four billion dollars was spent last year in the United States for drugs. Drugs are particularly likely to be accidentally ingested by children because they are brightly colored, usually sugar-coated, and we all urge children to "be good and take their nice-tasting medicine" when they are sick. Prescription drugs accounted for approximately a fourth of the drugs ingested.

Table IX.

Caution Label	Number	Per cent
No	219	51.8
Yes	156	36.9
Unknown	48	11.3
Total	423	100.0

Many times substances will be changed from the original container to a new one for a variety of reasons. Table IX shows that caution labels were present on containers in 36 per cent of the cases.

Table X.

Knowledge of Hazard	Number	Per cent
Yes	371	87.7
No	49	11.6
Unknown	3	.7
Total	423	100.0

People often have knowledge of the hazard, but fail to be motivated to change this hazard until an accident occurs. According to Table X, 87 per cent of the parents had some knowledge of the hazard of the substance that their child ingested.

Table XI.

Previous accidental poisonings in patient	Number	Per cent
None	363	85.8
1	52	12.3
2	6	1.4
3 or more	2	.5
Total	423	100.0
In other member of family		
None	359	84.9
1	53	12.5
2	9	2.1
3 or more	2	.5
Total	423	100.0

Certain individuals or families are more accident prone than others. It is interesting to note in Table XI that 29 per cent of the cases occurred in families where either the same individual or another family member had previously been involved in accidental poisoning.

Table XII.

Other Health Problems Noted	Number	Per cent
No	315	74.5
Yes	108	25.5
Total	423	100.0

The public health nurse in her visit to the home also notes other health problems. As shown in Table XII, other health problems were noted in 25 per cent of the home visits. Over half of the families with other health problems were not receiving care and

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Molecular properties of carnauba wax account for its performance characteristics, a new method of analysis reveals.

Carnauba Wax Molecules

*By Lee M. Prince**

Reichhold Chemicals, Inc., White Plains, N. Y.

CARNAUBA is unique among waxes in having a remarkable combination of useful properties. Hardness, high melting point, conchoidal fracture, extraordinary emulsifiability, excellent solvent retention, its value as a "melting point booster" . . . to mention only some of its diversified attributes, have catapulted this natural wax to industrial importance. Because oil-in-water emulsions of carnauba wax are stable and films deposited from them dry to a high gloss, floor polish manufacturers owe to it their 150 million dollar a year industry.

Carnauba put the carbon paper business on a sound footing by giving that industry its first good, clear, multiple impression papers. So important was the production of good carbon copies to the American war effort that carnauba had top priority as a raw material in World War II. Paste waxes made with carnauba brought the waxing of wood floors and furniture out of the Colonial era into the "do-it-yourself" age.

Object of this paper is to explain the emulsifiability and solvent retention of carnauba wax. This will be done by means of a molecular interpretation rather than a thermo-dynamic one.

The unusual performance properties of carnauba have come to be associated with the presence of hydroxylated, long-chain esters which comprise a majority of its molecules. Carnauba did not reveal this information easily. It took seventy-five years of analytical work to wrest this secret from it. Only in the past seven years, by means of molecular distillation, chromatography and X-ray techniques, has its composition been clearly defined. Findley and Brown (1) in 1953 at Ohio State University established the ubiquitousness of the hydroxy acids in beeswax, carnauba, ouricury, candelilla and carnauba waxes. They showed by molecular distillation that 53 per cent of the molecules of carnauba are long chain hydroxy esters.

In 1955, Murray and Schoenfeld (2) in Australia demonstrated that these hydroxy compounds are esters of monohydric alcohols and omega–hydoxy monocarboxylic acids, attached to the acid chain of the molecule at the end farthest removed from the ester linkage. It is now doubted that there are any free alcohols, as such, in carnauba, since the high acetyl numbers are accounted for by these hydroxylated esters. Table I. gives the analyses of the kind of molecules in carnauba by Findley and Brown (1) and Warth (3).

Length of the monohydric alcohols in carnauba range from C_{24} to C_{34}, 87% being C_{30} or above. Length of the fatty acids is, on the average, lower, ranging from C_{18}

Table I. Approximate Composition of Carnauba Wax

Findley and Brown (1)				Warth (3)
87%		**Alkyl esters of wax acids**		84-85%
	10%	Simple esters of normal acids	5-6%	
	5	Acid esters	5-6	
	19	Diesters	19-21	
	34	**Sub-total, non-hydroxy esters**	31	
		Esters of hydroxy acids		
		Saturated	38-40	
		Unsaturated	14-16	
	53	**Sub-total, hydroxylated esters**	54	
0		Free Wax Acids		3-3.5
		Lactides		2-3
0		Free and Combined Polyhydric and Oxy-Alcohols		2-3
		Resins		4-6
12		Hydrocarbons		1.5-3
		Moisture and Mineral Matter		0.5-1
99				100

*Paper presented at 46th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago, May 18.

to C_{30}, 65 per cent being above C_{24}. The original designation of carnauba wax as myricyl (C_{30}) cerotate (C_{26}) was not far from correct, except that a large portion of the acids are now known to be hydroxy monocarboxylic. A substantial fraction of diesters of C_{22}-C_{28} diols and fatty acids is also present. There are lesser amounts of acid esters, and esters of hydroxy acids with normal monocarboxylic acids.

For the purpose of this discussion the important numerical values are the percentages of non-hydroxy and hydroxy esters. These add up to 85 per cent of the constituents and we shall henceforth treat the wax as if these species were the only ones present. This is an approximation, of course, and is acknowledged as such. It may be observed, however, that both sources agree closely as to composition of this portion of the wax.

The naturally occuring ratio of hydroxylated esters to non-hydroxylated esters appears to be fortunate, since this ratio can be correlated with several performance properties; in particular with solvent retention and emulsifiability. For example, carnauba wax has excellent solvent retention for mineral oil, one of the properties of the wax which is utilized in manufacturing carbon paper. A simple test for solvent retention is to melt together an equal weight of wax and mineral oil in a small evaporating dish and allow the molten mass to cool. The 50/50 mixture of wax and mineral oil will exhibit no syneresis and the cake looks and behaves so much like the original wax that it is hard to believe that it contains 50 per cent oil. This same phenomenon is responsible for the "setting up" of paste waxes.

Not many other waxes perform in this way. Chinese insect wax does not, although the chemical species of which it is composed are quite similar to those of carnauba. The significant difference between these waxes lies in the lack of hydroxy groupings on the Chinese insect wax molecules. They are 93-95 per cent esters, chiefly of monohydric alcohols and monocarboxylic acids of similar chain length to those in carnauba. (3) By splitting these esters and separating the unsaponifiables and fatty acids by the usual techniques, the separate parts can be mixed together so that they reproduce the solvent retention properties of carnauba wax. This is illustrated in Table II.

Table II. Wax Mixtures with Excellent Solvent Retention

Example	Composition of Mixtures	Parts by Weight	Chemical Designation
A.	Chinese Insect Wax fatty acids	2	Cerotic Acid
	Chinese Insect Wax unsaponifiables	1	Ceryl Alcohol
	Mineral Oil	3	
B.	Chinese Insect Wax fatty acids	2	Cerotic Acid
	Carnauba Wax unsaponifiables	1	Myricyl Alcohol
	Mineral Oil	3	
C.	Chinese Insect Wax	2	Ceryl Cerotate
	Carnauba Wax unsaponifiables	1	Myricyl Alcohol
	Mineral Oil	3	
D.	Carnauba Wax fatty acids	3	62% Hydroxy Cerotic Acid;
	Mineral Oil	3	38% Normal Cerotic Acid*
E.	Carnauba Wax	3	54% Hydroxylated Esters;
	Mineral Oil	3	31% Normal Esters

*See Warth, p. 167

In Example A, a mixture of 67 per cent cerotic acid and 33 per cent ceryl alcohol is equivalent to carnauba wax in solvent retention properties. In Example B, it is shown that substituting a slightly longer alcohol for ceryl in Example A does not adversely affect solvent retention. Moreover, it demonstrates that this performance is not peculiar to Chinese insect wax. Example C indicates that an ester group attached to two long tails is equivalent to a carboxyl group attached to a single tail. This is further illustrated in Examples D and E where the hydroxy group on the long chain carboxylic acids of carnauba reproduces the solvent retention of the original hydroxylated esters.

Neither n-esters such as Chinese insect wax nor n-acids such as cerotic acid will hold mineral oil as do these mixtures. This suggests that disorder produced in the crystal latices of the normal esters and acids by hydroxyl groups enables the hydrocarbon molecules of the mineral oil to find their way between the polar molecules and be held there when the mixture cools. When the hydroxyl group is absent, the normal esters and acids will crystallize on cooling into ordered latices which exclude hydrocarbon molecules.

Further evidence of the degree of molecular disorder required for solvent retention in these systems is provided by the fact that mineral oil, with paraffinic molecules ranging from C_{11}-C_{20} is not retained in the latices when the chain length of the fatty acids or alcohols is reduced. For example, it was found that poor mineral oil retention was obtained with mixtures of stearic acid—stearyl alcohol or, indeed, cerotic acid — stearyl alcohol or ceryl alcohol—stearic acid. To complete the disorder in these systems in order to obtain solvent retention, the chain length of the mineral oil molecules must apparently be less than that of any waxy component. When the chain lengths are similar, the order/disorder balance tends towards more order and crystallization of the wax results.

The crystalline structures of

(*Turn to Page* 107)

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(*From Page* 101)

refined Chinese insect wax and its behavior in these solvent retention systems also furnishes a clue to the amorphous nature of carnauba wax. Chinese insect wax freezes in long needle-like crystals similar to spermaceti wax but more pronounced in character. Both Chinese insect and spermaceti are composed essentially of long chain esters without any hydroxy groups attached to the chains. Thus it can be inferred that the amorphous appearance and conchoidal fracture of carnauba stems from the presence of substantial amounts of compounds containing hydroxy groups which interfere with an orderly arrangement of its molecules in crystal latices.

Findley and Brown showed that candelilla and ouricury waxes contain hydroxy acid components and these waxes are also amorphous and fracture conchoidally as does carnauba.

The position of hydroxy groups on the esters does not appear to be critical in interpreting the data of Table II but it is significant in explanation of the emulsifiability of carnauba wax. At the liquid-liquid interface, molecules are free to assume any specific orientation consistent with their polar/non-polar structure. The position of an hydroxy group which is very polar will control, to a large extent, the orientation that the whole molecule will assume in the interfacial film. Whether this hydroxy group is located at the omega position on the ester, as Murray and Schoenfeld believe, or is situated adjacent to the ester linkage, in the alpha, beta or gamma position is therefore of considerable consequence. It will be shown that *only* if the hydroxy group on the hydroxylated esters of carnauba wax is far removed from the ester linkage, can the remarkable emulsifiability be explained.

Molecules which possess both hydrophilic (water-loving) and lipophilic (oil-loving) groups are surface active, that is, they tend to accumulate at an interface in accordance with Gibbs Law. Such molecules are called amphiphiles. We shall use this designation to refer to the alcohols and hydroxylated esters of carnauba wax in order to distinguish such surface active species from soap molecules.

Carnauba wax is dispersed in water by emulsification. So long as the wax-water system is above the melting point of the wax or mixture of wax and emulsifying agents, the system is called an emulsion. Once the dispersed droplets solidify, however, there is room for argument. In the strictest scientific sense carnauba wax in water at room temperature is a dispersion. But the arrangement of molecules in the monomolecular film between the wax and water, to which the system owes its very existence, was brought about by the interaction among molecules, which are free to orient themselves spontaneously and which could only occur at a liquid-liquid interface. This phenomenon, by

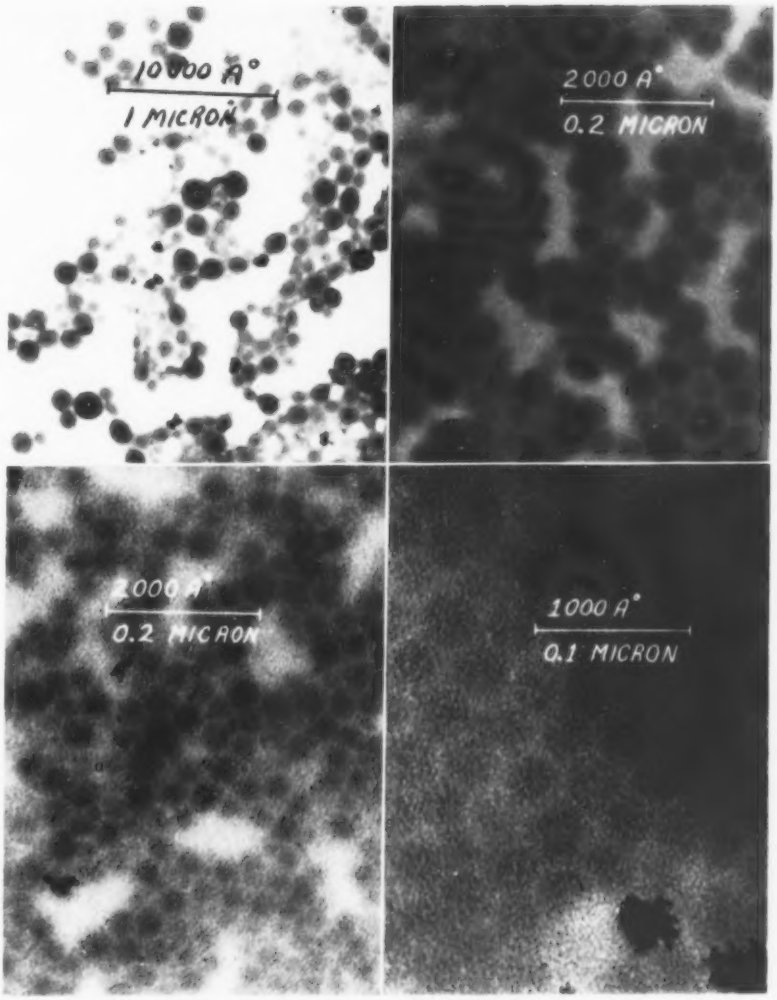

Fig. 1. Electron Micrographs of Micro Emulsions

Plate I (top, left). Magnification 35,000x taken at 10,000x, average diameter of droplets 1200 A°

Plate II (top, right). Magnification 140,000x taken at 40,000x, average diameter of droplets 450 A°

Plate III (lower left). Magnification 140,000x taken at 40,000x, average diameter of droplets 300 A°

Plate IV (lower right). Magnification 280,000x taken at 80,000x, average diameter of droplets 300 A°

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Chemically, butonate is an organic phosphate—0, 0-dimethyl 2, 2, 2-Trichloro-1-n-butyryloxyethyl phosphonate. It is a colorless, somewhat oily liquid, stable in neutral or acidic aqueous solutions, having a (mild) ester odor. Additional information, test data and samples for testing may be secured from us at any of the addresses shown below.

**Butonate's manufacture is licensed by the Wisconsin Alumni Research Foundation under U. S. Patent No. 2927881.*

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definition, produces an emulsion.

We are concerned here with those molecular species and the forces among them at the liquid-liquid interface which result in the formation of micro emulsions. In such emulsions droplet diameters are in the colloidal range.

Any profile of the molecular species of carnauba wax must take into account their ability to form stable emulsions of particle size smaller than the wave length of light. Such particles scatter white light and exhibit a pronounced Tyndall effect. Over the years, good carnauba wax emulsions have come to be identified with a Tyndall effect. Particle sizes in the range from 0.2 micron down to 0.01 micron have been assigned to these emulsions. Many of us have assigned dimensions to the particles of carnauba wax by holding the emulsion up to the light, observing the Tyndall effect, or lack of it, with the naked eye and solemnly pronouncing a number—0.12 micron. As we shall see, we were not deceived as much as we might have believed.

The Tyndall effect becomes visible when particle size falls below 0.3 micron. This is at the limit of resolution of the optical microscope. The electron microscope can routinely "see" matter, the maximum dimension of which is as small as 0.005 micron (50 Angstrom units) but this instrument also has limitations. The fact that the electron beam is very hot and operates in a high vacuum means that most organic materials will volatilize before their picture can be taken. This can be prevented by the replica technique in which the particle is coated with gold or some other electron opaque metal which will not volatilize. Using this technique, however, one does not "see" the original matter and this introduces an element of uncertainty.

Recently (4), a new technique of staining organic materials containing double bonds with osmium tetroxide has been developed which enables one to take a picture of the organic droplet directly. Alkyd resins containing linseed or soya oil, when emulsified into micro emulsions serve as excellent media for the demonstration of this technique. The electron micrographs of Fig. 1 were made in this way.

These photographs depict actual emulsion droplets with diameters ranging from 0.12 micron (1200 A°) to 0.03 micron (300 A°). These micrographs establish that these dispersions are actually spherical droplets of oil-in-water and are, therefore, in fact, micro emulsions. It will be noticed that as the particles become smaller they are more uniform in size. Hexagonal packing can be clearly seen in plates II, III and IV.

Since the Tyndall scattering of alkyd emulsions is almost indistinguishable in appearance from the effect produced by emulsions of carnauba or other emulsifiable waxes, a comparison of their optical appearance and actual particle size was made. To the extent that words can describe this phenomenon, it is hoped that Table III might serve as a guide to those who wish to rely on their "eye" to assign particle sizes to micro emulsions.

In estimating particle size by this method, two factors must be kept in mind which can confuse the senses. One is the index of refraction of the dispersed material. Light scattering is a function of the index of refraction of the dispersed particles relative to that of the dispersion medium, in this case, water. Carnauba wax and most alkyds have indices of refraction in the same range. Many other materials which can be made into micro emulsions, however, have substantially different values and care must be exercised in observing such systems. The second factor is the per cent solids or concentration of the emulsion. Low concentrations scatter light more strongly than concentrations in the 10 to 50 per cent range. If these factors are kept in mind, useful estimates of particle diameters can be obtained by observing the Tyndall effect with the naked eye.

(To be concluded)

Table III. Tyndall Effect vs. Particle Size

Particle Size by Electron Microscope* (microns)	Appearance to Naked Eye in White Light		
	Scattered	Transmitted	Opacity
0.3 to 0.2	weak blue	weak red	opaque
0.2 to 0.1	intense blue	intense red	opaque
0.1 to 0.01	weak blue	weak red	translucent
less than 0.01 (100 Å)	none	none	transparent

New Pesticide Handbook

The 12th annual edition of *Pesticide Handbook*, compiled and edited by Donald E. H. Frear, has just become available. The 1960 edition lists more than 8,000 commercial pesticides by chemical and trade designations, giving in each instance the manufacturer.

Published by College Science Publishers, State College, Pa., the Handbook costs $1.75 per copy, paper bound, $3.25, cloth bound.

—★—

New Stepan Surfactants

A new series of surface active agents described as ethoxylated alkylolamides has just been introduced by Stepan Chemical Co., Northfield, Ill. Tradenamed "Amidox," the new group of compounds is said to show promise in detergents, shampoos, emulsions, and other systems.

The "Amidox L" series includes ethylene oxide condensates of lauric monoethanolamides and the "Amidox C" series consists of ethoxylated coconut fatty acid monoethanolamines.

As increasing amounts of ethylene oxide are added to the amide the surfactants range from a predominantly alkylolamide character to predominantly nonionic characteristics.

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Pesticide Formulation

An insecticide carrier producer suggests seven step program for development of efficient and economic insecticide formulae

By Garth Coombs*
Johns Manville Corp.
Manville, N. J.

THE development of successful pesticide formulations requires an understanding of the following factors: a) Biology of pests and hosts; b) characteristics of available production and application equipment; c) toxicology of the pesticide in relation to plants, animals, and humans; d) the characteristics and relation to performance of the available formulation ingredients; and e) cost of the formulation on a unit-available toxicant basis as related to the potential market and to competitive products.

These factors might be summarized as the biological and the physical aspects of the formulation. Our experience has been with the physical aspects of formulations, particularly wettable powders and dust concentrates. The following is a discussion of these physical aspects and our approach to these formulation studies.

The objective in formulating a wettable powder or dust concentrate is to convert the technical pesticide into a particulate form, that, when diluted with either water or inert solids respectively, may be distributed so as to achieve desired biological control. The formulation must be suited for a range of application equipment, concentrations, water hardness, water temperatures, and types of surface. Particle size range should assure optimum results. In addition, the ideal wettable powder formulation should have suitable properties of wettability, deflocculation, sprayability, adherence, etc. Finally, the ideal formulation must maintain all these properties even after prolonged storage under adverse conditions.

Formulation Steps:

1. First step is to establish desired product performance by joint discussion with the pesticide manufacturer or formulator. Methods or facilities for production must be considered. Generally limits can be set for certain properties from the manufacturers' knowledge of the biology of the pests and toxicant. For instance, approximate particle size range, wettability, suspendability, and storage stability may be known or estimated. Agreement on test methods is essential. Test methods vary and in many cases this variation is enough to yield noticeable differences in results.

Discussion with interested formulating personnel is naturally general but will serve as a guide for developing suitable properties in a formulation so that it will meet biological requirements.

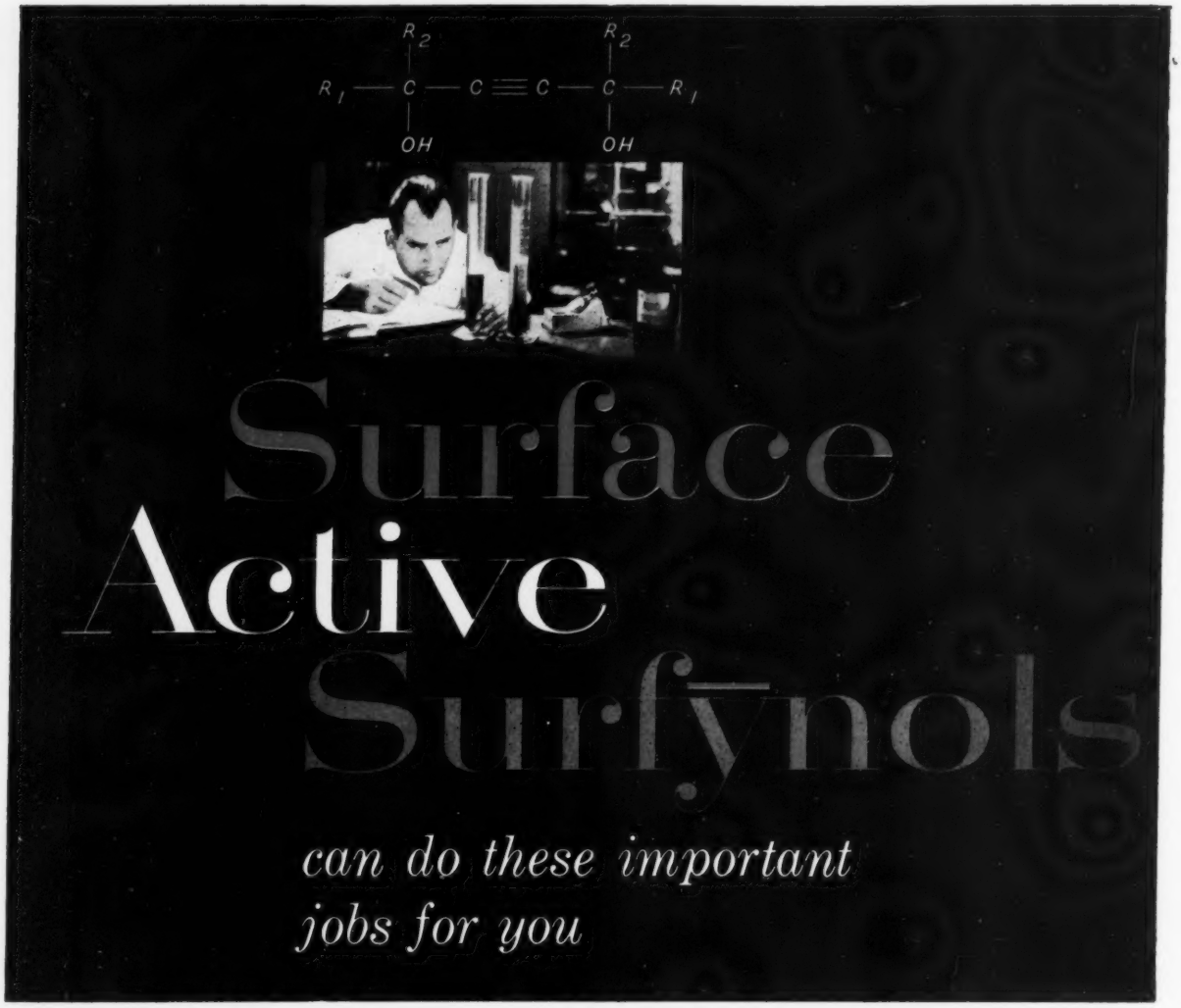
2. Second step in developing a formulation is preliminary study of compatibility or stability of toxicant and "inerts." Normally, stability is evaluated by an accelerated test at elevated temperatures that has been, or is being correlated with long-term tests under actual temperature conditions.

Several laboratory methods are used to test carriers or "inerts" and to predict their toxicant compatibility. These include determination of pK_a, (1) pH, moisture content, and ion exchange capacity. (2) These methods have given reasonable correlations with some toxicants. However, the ultimate test is actual storage. Occasionally, satisfactory carriers are eliminated because of laboratory tests of this type when later long-term tests show reasonable stability. Also, a compromise is sometimes required when no carrier provides 100 per cent results. The use of deactivators (3), if known, becomes necessary in some cases.

3. Third step is to evaluate the effects of varying the proportions of toxicant, carrier, and diluents, while temporarily omitting the surface-active agents from the formulation. This is done by preparing small test batches and comparing particle size, flowability, grindability, caking resistance," etc.

Liquid and semi-liquid toxicants are usually sprayed onto the carriers while they are agitated. For very small 59-100 gram samples we use a spray apparatus made from a half-gallon Mason jar with two holes drilled in the bottom and a modified "Osterizer" agitator. A special DeVilbiss 5001 spray nozzle, heated by a resistance wire, air atomizes the pre-weighed toxicant. The air is vented by an extraction-thimble vent or baghouse. For larger samples we use a one-gallon rib-

*Condensed from a paper presented at the 46th midyear meeting, Chemical Specialties Manufacturers Association, Chicago, May 18.



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DEFOAMING – Surfynol 104 is recommended as a defoamer for aqueous systems. This white waxy material is also available in two liquid forms: Surfynol 104E (50% active in ethylene glycol solution) and 104A (50% active in 2-ethyl hexanol). At about .2% concentration, Surfynol 104A or 104E cuts foam in such systems as emulsion paints, paper coatings, and insecticide formulations.

DISPERSING – Surfynol TG fits the requirements of a nonionic dispersant for emulsion paints and other emulsion and water-based systems. TG is an 83% active mixture of a Surfynol and an alkyl phenyl ether of polyethylene glycol in ethylene glycol solution. It promotes increased hiding power and better color development in emulsion polyvinyl acetate, acrylic or butadiene-styrene paints.

VISCOSITY CONTROL – Surfynol 82 (dimethyl octynediol) is most active as an anti-gelling agent. In addition to its use in shampoos, Surfynol 82 is recommended for viscosity reduction in vinyl plastisols, aqueous starch solutions, and flexographic inks.

VOLATILE WETTING – Surfynol 61 (dimethyl hexynol) is a volatile wetting agent. Surfynol 61's volatility permits easy elimination from a system after its work is done. One example is in glass cleaning formulations where Surfynol 61 helps solubilize dirt but leaves no film on the glass after cleaning.

INVESTIGATE SURFYNOLS if lower cost surfactants have not proven satisfactory. Airco's experienced technical representatives are always ready to assist you. For on-the-spot help or information call or write.

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bon blender with variable speed drive and a pressure spray-pot. The pressurized pot may be heated by an electric mantle. A solenoid valve allows rapid shut-off to increase the accuracy of controlling the weight of the material sprayed.

Solid toxicants are usually ground with the carrier by low energy hammer milling. If a finer particle size range is required, the sample may then have to be air jet milled. During this preparation, rather empirical observations are made on ease of processing. An attempt is made to evaluate relative flowability and grindability.

Proportions of toxicant, carrier, and diluents are chosen by a combination of trial and error and previous experience with toxicants of similar physical characteristics. For a low-viscosity liquid (at room temperature) toxicant, a higher percentage of absorptive carrier is needed than for a solid toxicant.

Experience has shown that the following "rule-of-thumb" generally correlates sorptivity of carriers with set-point or melting point range of the toxicant, assuming a dry and flowable product is desired. The correlation is not precise because of the broad melting point range of impure toxicants and the empirical method of evaluating flowable powders. The sorptivity per unit of toxicant is calculated by summing the products of per cent carrier and the Gardner-Coleman water absorption (4) for that carrier and dividing this sum by the per cent toxicant. Table I shows the range of sorptivities needed for several melting point ranges.

Table I: Sorptivities for Flowable Concentrates.

	Melting Point Range	Unit Sorptivity
Liquids	< 75°F	> 275
Semi-solids	75°F to 200°F	275 to 135
Solids	> 200°F	< 150

$$\text{Unit Sorptivity} = \frac{\Sigma\,(\%\ \text{Carrier})\ (\%\ \text{Water Absorption})}{(\%\ \text{Toxicant})}$$

4. Fourth step in developing a formulation is selection of suitable surfactants and other additives. Evaluation of surface-active agents normally starts with trial and error "compatibility" tests with a "blank" (i.e. without surfactant) toxicant-carrier sample. This "blank" was prepared during the previous step, by impregnation, hammer milling, and/or air jet milling. Concentration of the sample should be slightly higher than is ultimately desired, so that the addition of several per cent wetting and dispersing agents will dilute the formulation to the desired toxicity.

Cost and concentration must be considered in the selection of wetting and dispersing agents. Surfactants vary in their active concentration as well as in price so that a more expensive compound used at a lower concentration may be equal to a lower priced ingredient that must be used at higher concentrations. The physical form of surface active agents also affects selection. Even small additions of powdered products may be readily blended into a formulation, while liquid and waxy products are harder to add, particularly where uniform distribution of a small percentage is required. However, if the toxicant is to be spray impregnated onto the carrier and if the surfactant is miscible with the toxicant, they may be mixed and sprayed at one time.

Surfactants are tested for compatibility at an arbitrarily selected concentration (2 to 5 per cent), water temperature (78°F), and water hardness (342 ppm). Individual samples of the toxicant-carrier "blank" plus wetting and dispersing agents are hand mixed and slurried in the test water. These samples are visually evaluated for wetting time, amount and stability of foam, deflocculation, and cake height after a given period. Generally surfactants that cause excessive foam, slow wetting, or do not deflocculate the sample may be eliminated by these compatibiliy tests. Several relatively good surfactant combinations are usually found and these are then tested in more detail, particularly at different concentrations and at different water hardnesses.

Selection of ingredients to be included in these compatibility tests is a combination of "it-has-worked-before" and "it-was-on-the-shelf." Anionic or occasionally nonionic surfactants have generally proved to be the most successful. Lignon sulfonates offer an inexpensive source of efficient dispersing agents. Their main disadvantage is their dark color. Many wetting agents cause excessive foaming, which can be a nuisance in agitated sprayers. The selection of wetting agents must sometimes be a compromise between minimum foaming and maximum wetting.

One very serious problem in laboratory evaluation of surface-active agents is inability to predict their effect on biological performance. These ingredients will affect not only the preparation and deflocculation of the spray slurry, but also droplet size of the spray, initial spread and stick on the surface, and retention or wash-off of the toxicant (5). Surfactants and their use percentages may be selected without knowledge of these criteria. A poor choice could lead to poor field results. It has been suggested by Hardman and Thomas that field tests should be related to the amount of toxicant found on the plant rather than to the amount sprayed. (6) This would at least allow better evaluation of the toxicant even if non-optimum surfactants were used. Successful results must then initiate a search for the best formulation.

5. Fifth step is evaluation in greater detail of one or more candidate surfactant combinations and concentrations found promising in

(*Turn to Page* 127)

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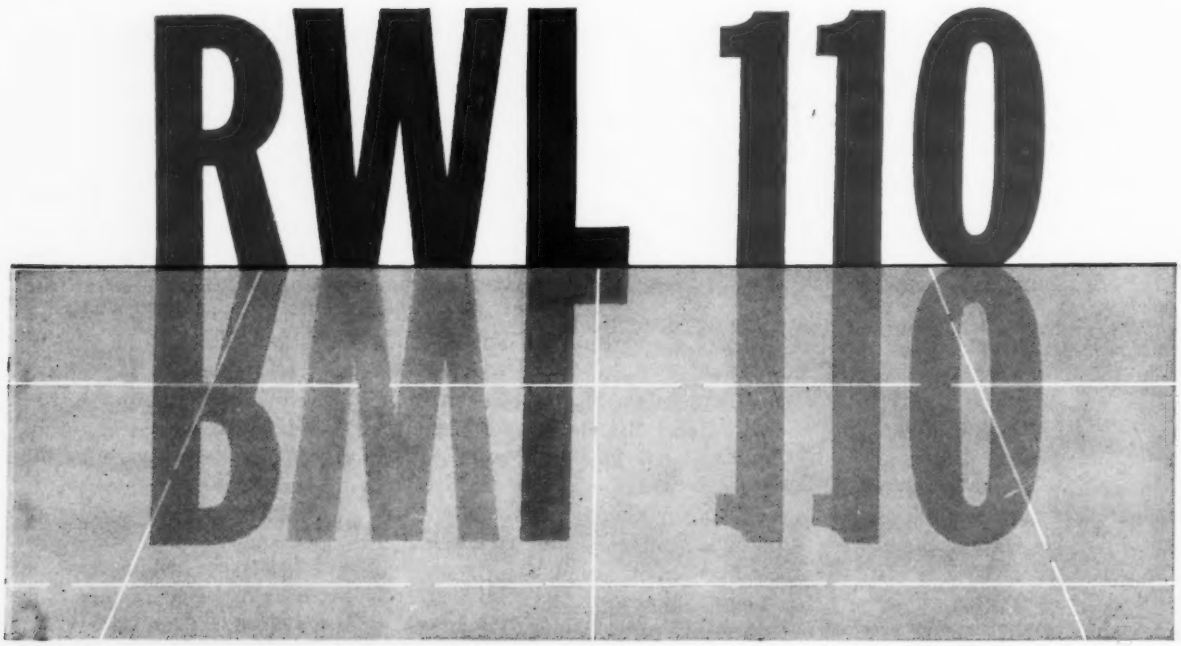


Frontier Chemical Booklet

Activities and products of Frontier Chemical Co., Wichita, Kans., are described and illustrated in a 24 page booklet, published last month. A division of Vulcan Materials Co., Birmingham, Ala., Frontier makes chlorine, caustic soda, muriatic and hydrochloric acids, salt, chlorinated solvents, benzene hexachloride, methylene chloride and a number of other basic and intermediate chemicals.

—★—

Plant Water Management

A new 24-page booklet describing the role of industrial water consulting service was published last month by Hall Laboratories, division of Hagan Chemicals & Controls, Inc., Pittsburgh 30, Pa.

In the form of an interview between a plant manager and a Hall engineer, the booklet answers some basic questions on water management and its importance.

Industrial Detergents

(*From Page* 61)

where ampholytics appear to have distinct advantages over ionic and nonionic types. Increasing availability and decreasing costs of a number of the possible raw materials will furnish many opportunities for the ampholytic types in an increasing number of applications. For example, they are finding outlets in the formulation of shampoos and in heavy duty liquid detergents with high inorganic salt content for maintenance cleaners. They show promise in emulsion polymerization of acrylics, etc.

Industrial use of surfactants is growing faster than retail detergent usage. Available statistics show that the major surfactants of a decade ago are either losing ground or not growing in volume consumption as fast as many items that were of minor status then. A prime example is the growth of polyoxyethylated alkyl phenols and of their sulfated derivatives. Similar opportunities will emerge for other types, especially those containing nitrogen in their structure, and possibly those containing silicon, fluorine and other rarely used elements. No product can rest on its past laurels and no sales organization can afford to let its surfactants be handled solely by "order-takers" or salesmen who depend on low costs and non-technical tools.

Increasing use of automation in many industries will undoubtedly change many usage patterns. This has possibly not been sufficiently recognized because it is difficult to foresee changes before they occur, but it is an additional reason for keeping in close touch with each individual user. In many cases, it can be predicted that surfactants will be included in processing streams merely as problem preventives, apart from the use of other surfactants as product ingredients. Trouble-free automation is cheaper than a preventive additive, such as a corrosion inhibitor or an antifoaming agent or bactericide. In some cases, a thousandth of a per cent, or relatively little more, of a comparatively expensive surfactant may reduce the consumption of a cheaper processing agent, as in the acid pickling of steel. Or it may reduce water evaporation, as does cetyl alcohol on desert lakes, producing highly desirable benefits not previously experienced.

Summary

There are always opportunities for the alert, research-minded organization that studies applications, offers technical assistance to its customers and possesses a real understanding of its customers' problems and objectives. It is not possible in a brief presentation to suggest more than a few of the many opportunities and possibilities. We do need better detergents for non-cellulosic fibers and surfaces. We may find nonionic-cationic surfactant combinations superior to soap or anionic types for general usage. The growing problems of biological degradation in water purification processes, and of automation in industry, must be faced. We need more surfactants that will disappear when their job is done. We need improved additives of all sorts. These are some of our opportunities.■

Poison Accidents

(*From Page* 101)

were referred to their family physician.

Table XIII.

Family's Response to Visit	Number	Per cent
Receptive	410	96.9
Non-receptive	13	3.1
Total	423	100.0

The family's reaction to the visit of the public health nurse was overwhelmingly responsive as shown in Table XIII.

The greatest percentage of accidental poisonings occur in suburban areas characterized by young, rapidly growing families. There is no evidence that the lower socio-economic housing areas have any more accidental poisoning for the number of children than do the higher socio-economic areas.

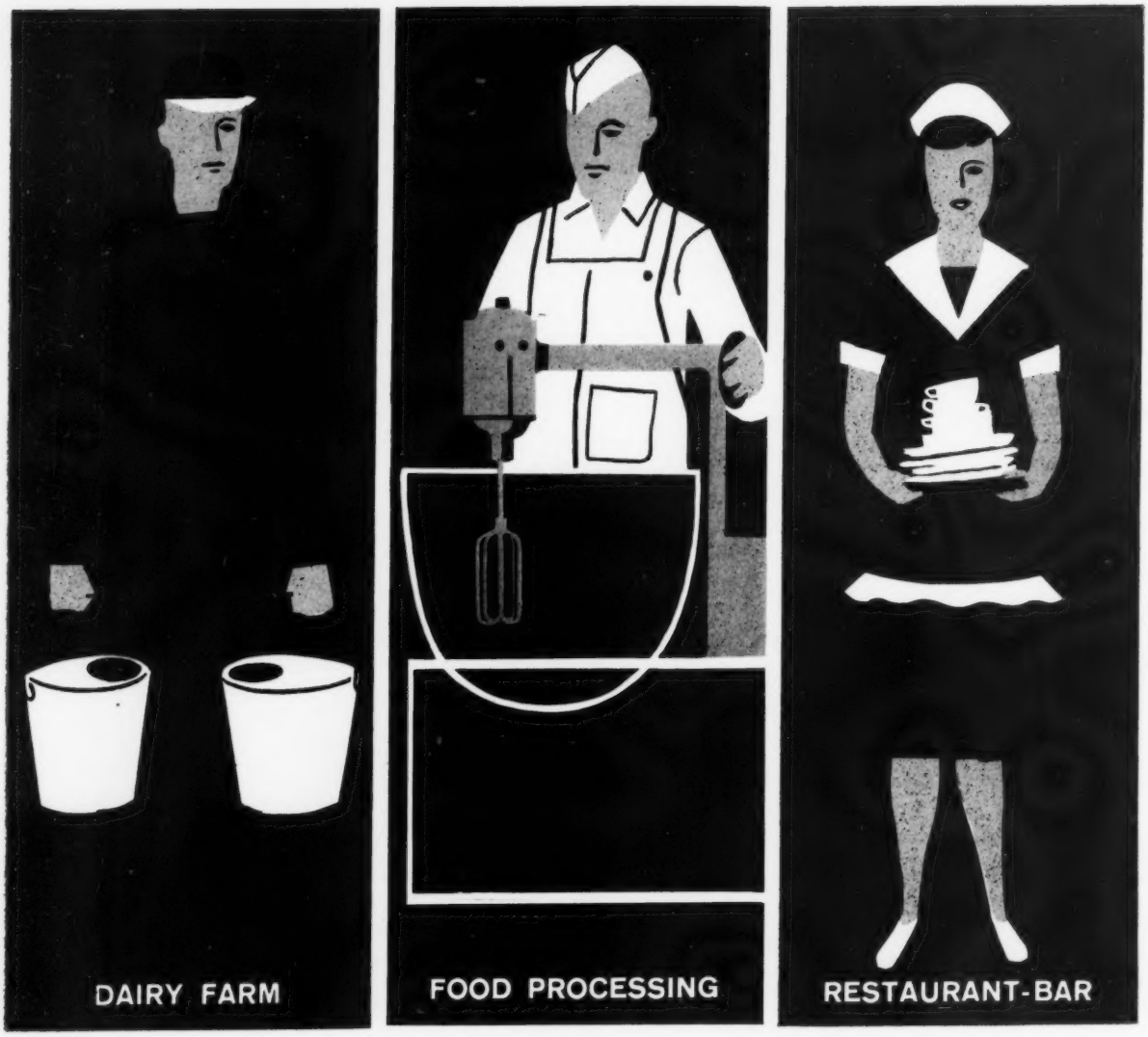
Table XIV.

Site	Number	Per cent
Shelf	123	29.1
Floor	67	15.9
Other	62	14.7
Medicine cabinet	43	10.2
Table	42	9.9
Dresser	38	8.9
Sink	21	4.9
Purse	11	2.6
Drawer	9	2.1
Window	7	1.7
Total	423	100.0

Finally, the most common sites for the substance involved in the accident were the kitchen shelf, the bedroom dresser and the bathroom medicine cabinet, although no area of the home was safe at all times.

Summary

1. Accidental poisoning is an increasing problem in the young child.
2. There are more accidental poi-



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Food processors find these same HYAMINE-TRITON detergent-sanitizers best for keeping processing and packaging equipment spotless and germ-free.

Restaurateurs and institutions prefer to wash dishes, glassware, silver and cooking utensils with TRITON X-100 detergent combinations, and then sanitize with HYAMINE 3500.

Write for samples and details on the superior hard surface detergency, excellent grease emulsification, free rinsing and high germicidal activity of HYAMINE-TRITON detergent-sanitizers.

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sonings among boys than girls.
3. The most frequent age for accidental poisoning to occur is in the one to two-year-old group.
4. Aspirin and other medicines are the most common substances ingested.
5. Follow-up studies reveal that the kitchen shelf, bedroom dresser and bathroom medicine cabinet were the most frequent sites involved in accidental poisoning.■

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Insect Control

(*From Page* 87)

standing. They may not be the most common household pest, but they certainly are the most unwelcome. Bed bugs have been suspected to be carriers of numerous human diseases, but no one has proved them guilty. However, their bites are painful and cause severe reactions in many people.

For many years the standard method of controlling bed bugs was repeated spraying of beds and rooms with kerosene. Later pyretherum sprays and dusts were used widely. Steam cleaning of mattresses and superheating and fumigation of homes were also employed, especially where infestations were heavy. However, none of these methods was highly satisfactory.

Soon after its discovery, DDT was found to be very effective against bed bugs. One thorough application was sufficient to eradicate an infestation. However, as with many other pests, in a few years resistance developed in certain areas and soon became widespread. Lindane was effective against DDT-resistant strains, but repeated applications were required. Meanwhile, research workers determined that a number of the organic-phosphorus insecticides were highly effective against these pests. In practical tests, "Diazinon" was outstanding, completely eliminating infestations in 24 hours. Malathion, ronnel, "Dipterex," dicapthon, and chlorthion were slower in action, but all eradicated infestations in 3 to 10 days. Malathion is the only one of these materials now recommended for use, and as yet there have been no reports of bed bug resistance to it.

Fleas

Fleas are primarily pests of animals, yet they are also among the most important insects affecting man. They are a common problem wherever there is an intimate association between animals and man. Many species probably would find it difficult to survive without animal hosts. One might therefore conclude that the best way to control fleas would be to eliminate their hosts. This is indeed desirable and even essential in combating rat fleas and those species on other rodents. Rodenticides are therefore important, if indirect, means of reducing flea population. However, host destruction is no a feasible solution to flea problems associated with domestic animals or pets. Sanitation measures and insecticides must therefore be employed.

For many years pyrethrum and rotenone dusts and sprays were used to combat fleas. They were not highly effective, but the best materials available until DDT came into the picture. DDT and several other chlorinated hydrocarbon insecticides were found to be highly effective in eliminating fleas on animals and in breeding areas. Perhaps the most beneficial use of DDT was in the rat tuns, harborages, and other situations to control the oriental rat flea (*Xenopsylla cheopis* (Rothsch.)) and species that are vectors of several important diseases.

DDT is still effective against the oriental rat flea and most other species of medical importance, but dog and cat fleas (*Ctenocephalides canis* (Curt.)) and *C. felis* (Bouche) have developed resistance in many sections of the United States. Resistance in these species as well as the human flea (*Pulex irritans* L.) has been reported from a number of foreign countries. However, several of the newer insecticides are highly effective against both resistant and susceptible species of fleas.

Malathion is perhaps the best all-around insecticide now available for general use in controlling fleas. It is highly effective as a premise treatment, and saft for direct application to animals. "Diazinon" gives slightly longer lasting control on premises and is also a very effective animal treatment, but at present only veterinarians can use it on animals. "Dipterex," ronnel (Korlan), and several other organic-phosphorus insecticides have given excellent results in practical tests but are not currently recommended for general use.

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adversely the human population of the world as the body louse (*Pediculus humanus humanus* L.) Its transmission of typhus fever has resulted in untold millions of deaths over the years. This and other species of human lice are also among the most annoying pests attacking man. The control of lice is therefore a necessity from the standpoint of human health and comfort.

The body louse is no longer a pest of importance in this and many other counrties where the standard of living is above average. Frequent changes of clothing and bathing are not conducive to their survival. However, lice are still prevalent among poor and backward people. Insecticides are necessary to control lice among such people, and especially to protect our troops at all times from infestation at home and abroad. Research is constantly in progress to develop new and better materials for these uses.

Prior to World War II pyrethrum and rotenone were the most widely used materials for controlling lice, but neither was highly effective. A special pyrethrum powder (MYL) developed early in the war proved very effective, but it had to be applied several times at weekly intervals to eradicate infestations. This formulation was of course soon superseded by the now famous 10 per cent DDT powder, which accomplished eradication in a single treatment. Also, clothing properly impregnated with DDT would prevent louse infestations, even after being laundered six to eight times.

The spectacular effectiveness of DDT during the war led everyone to believe that the louse problem was solved forevermore, and research virtually ceased. However, early in the Korean War DDT failed and research was hastily expanded to find new materials. A one per cent lindane dust solved the problem, although it had to be applied several times to eliminate infestations. Studies therefore were continued to find better materials. A number of insecticides have shown promise, but only one, malathion, has reached an advanced stage of development. A one per cent malathion dust has given results comparable with those first obtained with DDT, and the Public Health Service has determined that it is safe to use on humans. The World Health Organization and the U. S. Army Medical Department have under way field trials in foreign areas where lice are resistant to DDT and lindane. Meanwhile, the search continues for even better louse control agents, because we cannot be sure that in time resistance will not develop to malathion.

Ticks and Chiggers

Ticks and chiggers cause annoyance throughout the warmer months in many sections of the United States. Some species of ticks also carry serious diseases, such as spotted fever and tularemia, but chiggers are not known to be disease vectors in this country.

In lawns and small recreation areas, thorough applications of dusts or sprays of toxaphene, lindane, BHC, chlordane, dieldrin, or heptachlor will control both chiggers and ticks. DDT is also effective against ticks, but is of no value against chiggers. All these materials have been in use for a number of years, but are still effective. A number of the organic-phosphorus insecticides are also effective, but none has been specifically recommended for area control. In view of the present wide range of uses of malathion and its low toxicity, there appears to be no objection to it for area treatment. "Diazinon" might also be used at low dosages under certain conditions.

Although it does not attack humans, the brown dog tick (*Rhipicephalus sanguineus* (*Latr.*)) frequently becomes abundant in homes and other buildings where dogs are allowed. All stages hide in cracks, furniture, behind pictures, under rugs, and in other places, and sometimes large numbers may be seen crawling on floors and walls. It is therefore often necessary to treat the entire home and animals several times in order to control an infestation.

For a number of years DDT, chlordane, lindane, or dieldrin were used to control the brown dog tick. However, resistance to DDT and chlordane developed in many areas and other insecticides had to be found. The most effec-

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tive thus far have been malathion and "Diazinon." Malathion is available for general use in homes and on animals, but only veterinarians are authorized to use "Diazinon." Several others of the organic-phosphorus insecticides have been found effective, but none is presently approved for this use against this tick.

Protection from Biting Pests

Any discussion of the progress that has been made in the control of insects affecting man would be incomplete without some mention of insect repellents. Chiggers, ticks, fleas, mosquitoes, and other biting insects obviously cannot be controlled everywhere; so man frequently must use some means of personal protection. This is especially true of troops and field workers.

The need for personal protection became acute at the outbreak of World War II, and intensive research was directed towards the development of repellents. This research produced ethylhexanediol, dimethyl phthalate, and Indalone (butyl 3,4-dihydro-2,2-dimethyl-4-oxo-2*H*-pyran-6-carboxylate), and a 6-2-2 mixture of them. These repellents greatly reduced annoyance from mosquitoes and doubtless effected some reduction in mosquito-borne diseases. However, the greatest benefit from repellents was in Pacific areas where mite typhus threatened to decimate our troops. This threat was avoided by impregnating uniforms with dimethyl phthalate and later with benzyl benzoate. None of these wartime repellents was highly effective against fleas and ticks.

After the war, research was continued to find better repellents and, if possible, a single material or a combination that would be effective against all pests attacking man. This work led to the development of the repellent formulation M-1960. Although it was not suitable for skin application, clothing impregnated with it provided almost complete protection from ticks, chiggers, fleas, and mosquitoes. It was widely used by troops during the Korean War, but has not been recommended for civilian use.

Several years ago chemists in what is now the Entomology Research Division synthesized a compound, diethyltoluamide, which seemed to fulfill the requirements of an all-purpose repellent. Extensive field trials showed it to be equal or superior to the best specific repellents against each species tested. Its only shortcoming was that when applied to clothing it was not as resistant to leaching or washing as M-1960. This outstanding repellent is now on the market.

New Approaches to Control

It seems appropriate to conclude this paper with some views on the future. At present chemicals are our only means of controlling most species, and for the most part those in use are giving satisfactory results. However, the ever-present threat of resistance makes it mandatory for researchers to continue to search for substitute insecticides. There is no foreseeable end to insecticide research but it is being reduced in order to explore new approaches to control.

For several years much publicity has been given to the successful control of the screw-worm fly (*Callitroga hominovorax* (Cqrl.)) in Florida through the release of male flies sterilized by irradiation. Studies are under way to determine if this method is feasible against other pests. There is a chance that it may be effective against certain species of mosquitoes and perhaps tsetse flies in Africa, but has less potential in the control of insects affecting man than of crop pests.

Recent research has shown that certain chemicals placed in the breeding media or fed to the adults cause sterility in female house flies. This successful demonstration of chemo-sterilant activity opens up a possible new approach to the control, not only of house flies, but also of cockroaches and several other pests.

Another intriguing approach is the use of insect pathogens. Excellent progress has been made in finding and using disease organisms for the control of several crop pests. Little research has been devoted to the diseases of insects affecting man and nothing of value has yet been found. However, it is believed that there are organisms that could be adapted for use in control of mosquitoes, flies, roaches, and perhaps even human lice.

The recent demonstration of the effectiveness of several systemic insecticides for the control of cattle grubs has stimulated the hope of finding systemics for use in man. Such materials might be administered orally to kill lice and other species attacking man, as is atabrine for malaria control. It is possible that systemic repellents could be found for use against mosquitoes and other biting flies.

These are only a few of the possible approaches worth looking into while insecticides are still holding the line against insects. Vigorous and imaginative research along these and many other lines could very well revolutionize the control of certain species affecting man.■

Aerosol Germicide

(*From Page* 97)

get plate. All plates and tubes were incubated for 48 hours at 37°C.

Frequently, growth on the target plate consisted of a few minute colonies, the broth cultures showed no growth, while the plates containing the one ml. sample contained varying numbers of colonies of normal size.

Results

Results of some tests with three aerosol-disinfectants are given in Table I, which appears on page 97.

Of these three aerosols only B was considered worthy of further study. Table II shows results with *T.interdigitale* and *M.smegmatis.*

Discussion

Control counts taken just before the application of the aerosol were very high—greater than 2,000,000 *S.aureus,* 100,000 *S. choleraesuis,* 10,000 *T.interdigitale* and *M.smegmatis.* In view of the number of microorganisms found on naturally-contaminated objects, these counts were sufficiently high to provide the desired margin of safety.

We accepted as the criterion for good germicidal action, the fact that none, or only an occasional microorganism, survive in any of the 10 plates.

Sample B was the only aerosol that met the criterion established for good germicidal activity (10 out of 10 plates showing none or an occasional colony) with both gram-negative and gram-positive bacteria. This was the only sample subjected to further study. The germicidal activity of this aerosol proved good against both fungi and acid-fast micro-organisms. It will be noted that Method 1 was satisfactory for testing with *S.choleraesuis, S.aureus* and *M.smegmatis* but Method 2 was used for *T.-interdigitale.*

Sample C was tested by Method 2 because all test plates, resulting from the use of Method 1, showed partial or complete bacteriostasis with both *S. aureus* and *S. choleraesuis.* This aerosol contained a very bacteriostatic agent and 10 per cent serum was used as the neutralizer, since no specific neutralizer is known.

Summary

A method for evaluating the germicidal activity of aerosols to be used for spot disinfection has been described. The test is relatively simple to perform. By the use of Method 2, a disinfectant aerosol which contains a very bacteriostatic compound can be tested and its true ability to kill, not inhibit, all test organisms can be determined. Test results with three disinfectant-aerosols have been given to illustrate the value of the method.■

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Tripoly Plant

(*From Page* 64)

over the entire operation.

Between the mixing and calcining operations, the solution passes through a spray dryer which removes the moisture. The dryer at Carteret is one of the largest in existence. Screw conveyors move the mixture of mono-sodium phosphate and di-sodium phosphate, as it comes from the dryer, to the calciner. It is in the calciner that this mixture is converted into sodium tripolyphosphate.

A second control board, some 25 feet long, controls all operations in the drying, calcining and sizing operations. A second quality control laboratory checks the product as it progresses through these operations, particularly to assure proper reaction temperature rise, one of the most critical qualities when sodium tripolyphosphate is used in detergent manufacture. Continuous quality control is claimed to result in a product of highest purity; one that meets the close tolerances of its customers.

The product emerges from the calciner in granular form. Marketed either in granular form or powdered, the sodium tripolyphosphate goes from the calciner either to storage tanks or to grinding mills that reduce it to powdered form. Eight storage silos provide ample storage for the finished product prior to shipment. While most is marketed in bulk, it is also available in 100-pound bags.■

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Synth. Perfumes Output

The U. S. Tariff Commission released last month its preliminary report on U. S. production and sales of flavor and perfume materials in 1959. Total production in 1959 amounted to 47 million pounds — nine per cent more than the 1958 production of 43 million pounds. Sales in 1959 amounted to 43 million pounds, valued at $54,000,000 compared with 40 million pounds and $52,000,000 in 1958.

Production of cyclic flavor and perfume compounds in 1959 totaled 27 million pounds compared with 25 million pounds in 1958. Sales of cyclic materials in 1959 amounted to 22 million pounds valued at $32,000,000, compared with 21 million pounds valued at $31,000,000 in 1958. Individual chemical in the cyclic group produced in greatest volume in 1959 was methyl salicylate which accounted for three million pounds.

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ing. Also shows areas receiving equal scrubbing.

Figure D—Homogeneous Vinyl Tile—6—with and without waxing.

Figure E—Vinyl Asbestos Tile—4—with and without waxing.

Figure F—Backed Vinyl Sheet—7—with and without waxing.

Figure G—Roto Vinyl Sheet—9—with and without waxing.

Figure H—Asphalt Tile—1—with and without waxing.

Summary and Conclusions

In summarizing the results reported herein of the controlled floor service tests which were carried out over a reasonably long period of time on representative resilient smooth surface floor coverings of all kinds, using commercially manufactured floor waxes and following normal maintenance procedures, it is pertinent to reconsider the reasons why the consumer uses floor wax.

1. *Enhancement of floor beauty*: Waxing enhances the beauty of all floor coverings by increasing the initial gloss on the average of two to four times.

2. *Maintenance of appearance*: In service under traffic, all floor coverings maintained by regular waxing show a 300% to 400% higher gloss than those on which no floor wax is used.

3. *Resistance to soiling:* Waxed floor coverings exhibit a dramatic superiority in brightness and resistance to soiling over those on which no floor wax is used. This can best be appreciated from appended photographs.

4. *Protection against scratching and dulling:* Floor coverings after use, and particularly some of the new very smooth surface vinyl coverings, maintained by regular waxing, show markedly less scratching and dulling of the surface after the floor wax has been stripped off than the same floor coverings without waxing. Figure I shows a graphical presentation of the effect.

5. *Restoration of appearance:* The appearance of all floor coverings after a prolonged period of service shows a superiority for those maintained with floor wax, so marked as to be outstanding over those not maintained with floor wax under equivalent conditions. In terms of gloss readings, the surfaces treated with floor wax showed a range of 3 to 16 times more gloss than the same floor covering surfaces on which no wax was used. This is representative of the appearance of the surfaces just following the scrubbing, stripping and rewaxing of the floor coverings. Figure 2 is a bar chart showing a graphical presentation of the results on four different

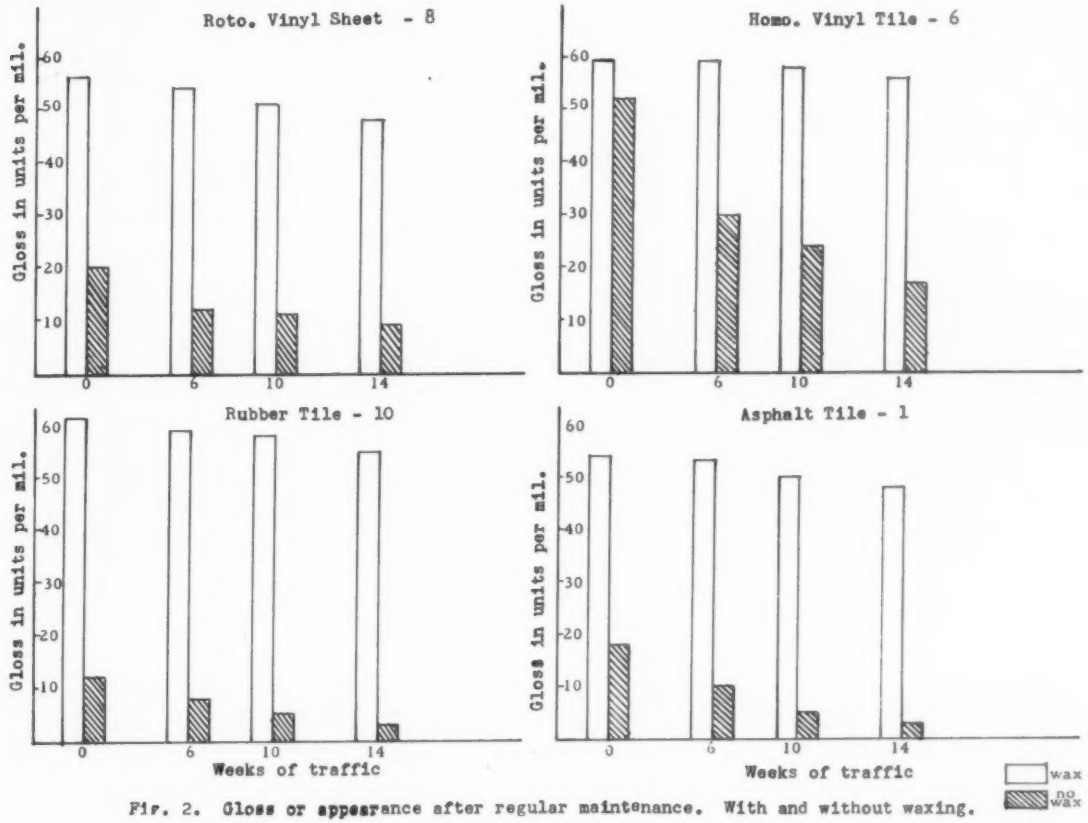
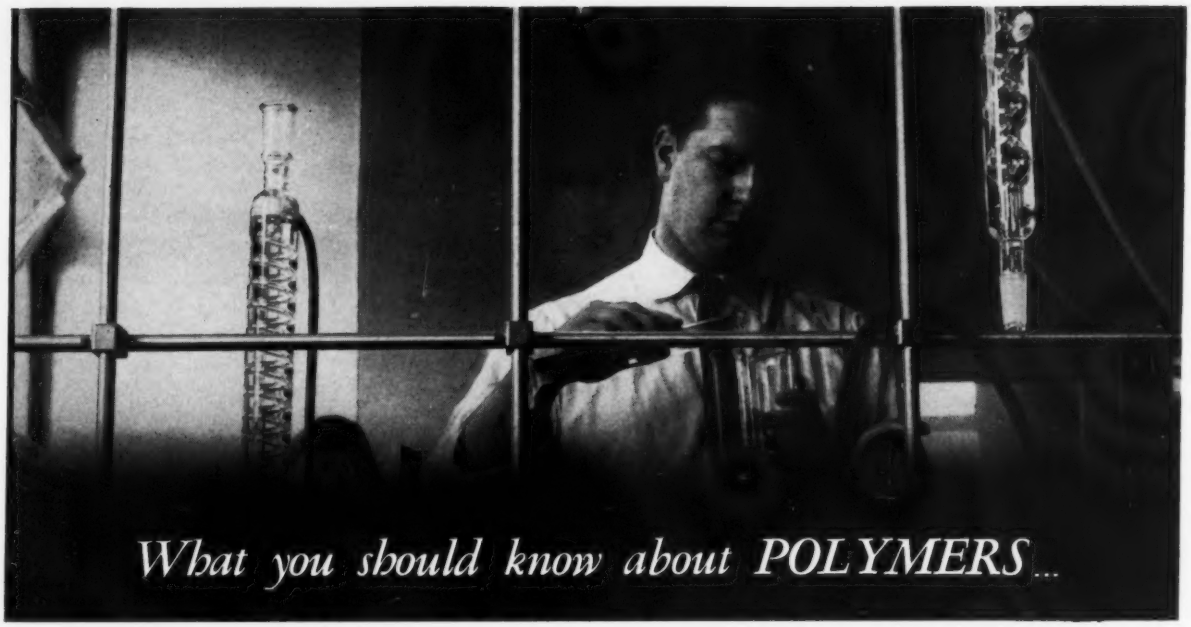


Fig. 2. Gloss or appearance after regular maintenance. With and without waxing.



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U-2001 UBATOL was the first of its kind to make a debut into the floor polish industry and remains today as the standard of the industry. In fact, all of the floor polish made from this polymer since 1953 would amply cover the state of Texas. U-2001 adds **toughness** and **water resistance** to floor polishes with the added advantage of **recoatability.** Formulations made up with this polymer ably resist "whitening" when "second coated"

U-2003 UBATOL has one third the particle size of U-2001 (for greater gloss) and an increased solids content from 36 to 40%.

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U-4001 UBATOL stands apart from other U B S polymers. This floor polish component is unique because it combines the excellent gloss of the styrenes with the toughness and durability of the acrylates. U-4001 is rated tops for film clarity.

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Table A. Observations After 8th Two Week Cycle of Traffic Exposure.

(Panels damp mopped and buffed (Waxes B and C), but not stripped.)

Asphalt Tile—1—white mottled with yellow and brown: Waxed panels are definitely cleaner and have good gloss, whereas non-waxed panel lacks gloss, shows severe overall soiling and considerable heel marking.

Asphalt Tile—2—white mottled with black: Waxed panels are cleaner and have fair gloss. Non-waxed panel shows overall soiling and some heel marking. Contrast less pronounced than with asphalt tile 1.

Vinyl Asbestos Tile—3—solid white: Waxed panels are brighter, have better gloss and very much less dirt retention. Non-waxed panel has brownish cast due to ingrained dirt.

Vinyl Asbestos Tile—4—white mottled with green: Waxed panels show higher gloss, markedly less ingraining of dirt and less heel marking than non-waxed.

Homogeneous Vinyl Tile — 5 — solid white: Non-waxed panel is badly scratched, very badly soiled with dirt ingrained in scratches, and lacking in gloss—dull eggshell. Waxed panels show high gloss and much improved overall cleanliness.

Homogeneous Vinyl Tile — 6 — solid white: The panels maintained with waxes A and B show very marked contrast with non-waxed, being cleaner and much higher in gloss. Dirt is ingrained in scratches on unwaxed panel. The panel waxed with wax C shows more scratches and greater dirt pick up than other waxed panels.

Backed Vinyl Sheet — 7 — yellow background — terrazzo style: Markedly higher gloss and better appearance and less surface scratches on panels maintained with waxes A and B. Again, the panel maintained with the solvent wax C shows more scratching and more dirt retention than noted on the other waxed panels but less than on unwaxed panel.

Roto Vinyl Sheet—8—grey background and colored diamonds: Waxed panels much cleaner and show high gloss approaching that of unused panel. Unwaxed panel is dirty, shows scuff marks and is lacking in gloss.

Roto Vinyl Sheet—9—white with gold sparkle: Waxed panels, excepting wax C, show high gloss, are clean and show less scratching than unwaxed. Non-waxed panel is dull, brownish dirty cast and shows black scratch marks due to ingrained dirt.

Rubber Tile—10—white mottled with green: These panels show the greatest contrast of all between waxed and unwaxed panels. Non-waxed panel is very dirty overall, with ingrained dirt in scratch marks. Waxed panels show excellent gloss and cleanliness.

Linoleum Sheet—11—solid white: Waxed panels are very much cleaner than non-waxed and have slightly higher gloss.

Table B. Observations on Stripped and Cleaned Panels After Final Cycle of Traffic.

(Note: Those panels which received wax maintenance during the test program will be referred to in this instance as waxed panels even though observations were made after wax removal.)

Asphalt Tile——white mottled with yellow and brown: Distinctly better appearance and gloss of all waxed panels. Noticeable difference in embedded soil favorable to waxed panels.

Asphalt Tile—2—white mottled with black: Better gloss and overall appearance shown by all waxed panels. Noticeable difference in soil embedment.

Vinyl Asbestos Tile—3—solid white: Slight difference in gloss, ingrained dirt and heel marks (permanent) in favor of waxed panels.

Vinyl Asbestos Tile—4—white mottled with green: Waxed panels show distinctly better appearance, gloss and depth of green color. Noticeable difference in embedded soil in favor of waxed panels.

Homogeneous Vinyl Tile—5—solid white: Waxed panels show superior gloss—unwaxed is dull eggshell white. Solvent base wax C panel shows more scratches with more ingrained dirt than on unwaxed. Other waxed panels show less soiling than unwaxed panel.

Homogeneous Vinyl Tile—6—solid white: Waxed panels (A and B) exhibit less soiling than unwaxed panel. Solvent base wax shows marked ingraining of dirt in scratches similar to Homogeneous Vinyl 5. Waxed panels markedly superior to unwaxed panel in gloss.

Backed Vinyl Sheet—7—yellow background—terrazzo style: Definitely less ingraining of dirt in waxed panels. Superior gloss on all waxed panels.

Roto Vinyl Sheet—8—grey background and colored diamonds: Waxed panels show better gloss and slightly less soiling.

Roto Vinyl Sheet—9—white with gold sparkle: Waxed panels exhibit better gloss and less ingraining of dirt.

Rubber Tile—10—white mottled with green: Superior gloss on all waxed panels. Waxed panels show slight yellow discoloration.

Linoleum Sheet—11—solid white: Waxed panels show less ingraining of dirt and superior gloss, but additionally show slight yellowing.

(*From Page* 125)

floor coverings, representative of the floor coverings.■

—★—

Industrial Cleaning Guide

Soils commonly found on surfaces of chemical processing equipment as well as solutions and procedures for their removal are listed and correlated in a 16 page illustrated folder published recently by Oakite Products, Inc., 157 Rector Street, New York 6. Entitled "Maintenance Cleaning in the Chemical Industry," the booklet gives information in tabular form on soils and suitable cleaning materials and reports a number of case histories from the chemical processing field.

Pesticide Formulation

(*From Page* 113)

the preceding steps. Test samples are prepared in small quantities of ¼ to 10 pounds by procedures simulating scaled-down production techniques as closely as possible. The finished formulation is tested as extensively as possible in the laboratory. This can include particle size analysis, "before- and after-tropical storage" suspendability tests, (7) tests for wetting time, foaming, surface tension, effects of water hardness and temperature on suspendability, caking tests, screen analysis, stability tests, etc. Performance is checked against added cost of formulation per unit of toxicant.

6. The sixth step consists of biological evaluation of the formulation. This is usually the pesticide manufacturer's part of this "cooperative" formulation project. If it is not possible to submit a formulation that meets all of the original goals, one or more alternative formulations may be presented. One of these may serve as an interim formulation, or they may show that the goals were unrealistic. In all cases, a practical, biological test should be made to ascertain if a desirable formulation has been achieved.

When results of limited field

whatever your formulation need—
there is a

GEIGY INSECTICIDE

to help you get

- KNOCKDOWN
- POSITIVE KILL
- SAFETY
- LONG RESIDUAL ACTION
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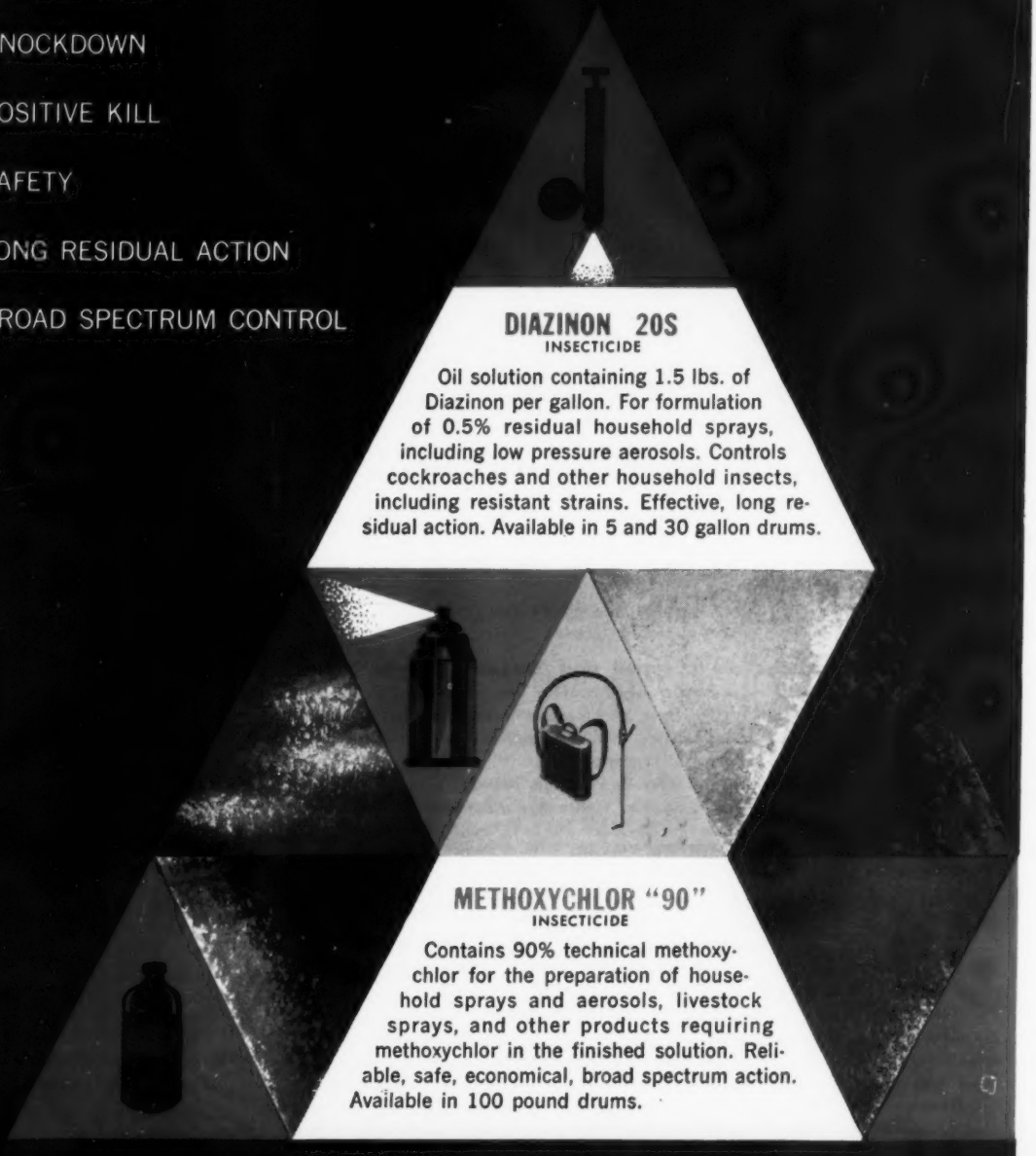

DIAZINON 20S
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Oil solution containing 1.5 lbs. of Diazinon per gallon. For formulation of 0.5% residual household sprays, including low pressure aerosols. Controls cockroaches and other household insects, including resistant strains. Effective, long residual action. Available in 5 and 30 gallon drums.

METHOXYCHLOR "90"
INSECTICIDE

Contains 90% technical methoxychlor for the preparation of household sprays and aerosols, livestock sprays, and other products requiring methoxychlor in the finished solution. Reliable, safe, economical, broad spectrum action. Available in 100 pound drums.

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trials are available they should be discussed by all interested parties. This is the stage when possible or necessary improvements should be considered.

7. The final step following limited field trials is large-scale production testing and extensive field testing. If the laboratory preparations were realistically made and if the desired production techniques can be followed, large-scale tests should proceed without difficulty. However, since some of the effects of quantity production, such as operating temperatures of large-scale equipment, are difficult to predict, production tests are very necessary when low melting point materials, such as pesticides are involved.

Formulations used in production trials should be conservative in design. Percentage of carrier should be ample for good results. This may make the initial formulation more expensive than necessary, but once satisfactory production runs have been made, the formulation can be adjusted to balance production cost and product performance.

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AEROSOLS · LIQUIDS · PASTES · POWDERS

Novel container for private label powdered hand soap of Arrow Chemical Products, Inc., Detroit, features water resistant fibre body with metal ends. Bottom has wide mouth opening for easy filling. Closure is of friction plug type. Top is fitted with metal pour spout. Can is of five pound capacity. White body is printed in two colors: red and blue.

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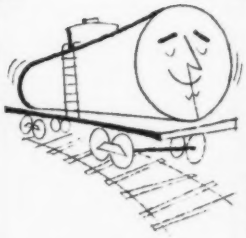
Du Pont regularly conducts surveys, clinics and seminars to bring you up-to-the-minute market information on aerosols. No other manufacturer of propellents offers such comprehensive studies. These facts and figures can help you pinpoint new markets for increased sales and profits.



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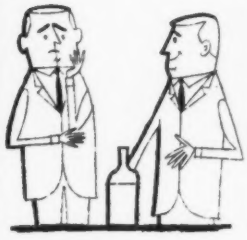
There are three Du Pont plants manufacturing "Freon" in the U.S., one in Canada and a network of warehouses to assure you of virtually local delivery . . . fast and efficient. "Freon" propellents are recognized throughout the aerosol industry for their unvarying high quality and top performance.



PRODUCT DEVELOPMENT SERVICE

Working on a new aerosol product? Du Pont may be able to help you with information on new or improved aerosol techniques worked out by its product development research team. These men can save you time and expense in experimental work by assisting you with their knowledge of formulations and packaging.

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In addition, Du Pont national advertising on "Freon" helps establish a quality product in the minds of your customers . . . contributes to a better sales "climate" for you. E. I. du Pont de Nemours & Co. (Inc), "Freon"* Products Division 319, Wilmington 98, Delaware.

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An all-stainless-steel line for loading pressurized food products in aerosol containers under sanitary conditions is now in operation at Stalfort's modern Pressure-Pak plant. Completely segregated in a glass-enclosed area, this line is dismantled and sterilized before and after each production day. Any food product suitable for aerosol dispensing, even powder, can be economically handled in this area.

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Photo courtesy Glass Container Manufacturers Institute

Trends in Glass Containers

by Dr. Enio Feliciotti,

Manager, Customer Research,
Hazel-Atlas Glass Division
Continental Can Company

GLASS is an ancient material. It has even been called the first synthetic material. Yet, the composition of commercial glasses today is not very different from that which the Egyptians produced in approximately 2,000 B. C.

You might take this to mean that the glass industry has lacked imagination, but in reality economics and the laws of physical chemistry are responsible for the limitation in variation of glass composition. The situation is such that we can not look for any trend toward change in the basic composition of glass used for containers.

Other aspects of the glass industry are by no means as nonchanging as is this factor. The manufacturing, design and use characteristics of glass packages have undergone, and will continue to undergo, interesting changes.

In the realm of manufacturing advances, the important considerations at the present time are faster production speeds, lightweighting, increased strength and bottle coatings.

Faster Production Speeds

The production speed of modern glass forming machinery is such that we can now make bottles at a rate of some 250 per minute as compared with the maximum rate of 30-40 a minute 20 years ago. Some glass manufacturers have set a goal of doubling the present production speeds during the next decade and have an eventual goal of making 700 or more units per minute.

Lightweighting

The industry is working steadily and with considerable progress toward achieving greater strength with less weight. The typical pre-war bottle weighed some 22 to 24 ounces;; the same bottle today weighs 15 to 17 ounces. Quart jars that weighed 18 to 20 ounces 25 years ago today weigh 11 to 13 ounces. In general, the glass container of 25 years ago weighed one-and-a-half times as much as the same unit today. Recent studies and developments point to further lightweighting of wide mouth jars by 20 per cent.

Economics of production and distribution is the strong incentive for weight reduction. Light weight bottles permit faster forming machine operations which, in turn, lower container costs. Simplicity of design has aided in weight reduction since forming of such containers is considerably easier.

Increased Strength

The glass manufacturer is extremely conscious of the fact that we are only utilizing about one per cent of the measurable laboratory strength of glass. Ordinary glass fibers show tensile strength of one million pounds per square inch, much stronger than the strongest steels. Unfortunately, glass is susceptible to stress concentrations, or, in the terms of the engineer, "notch sensitivity." Glass is weakened by pits, scratches, chips and abrasions which act as sites for concentration of the stresses that tend to cause breakage. The industry goal is to raise the utilization of the inherent strentgh of glass from the present

THE CAP THAT STAYS ON— EVEN WHEN IT'S OFF!

CONTINENTAL'S NEW ALL-PURPOSE FLIP CAP*

Continental presents new packaging beauty with economy and convenience, too... Flip Cap* can, with dripless pour spout, is perfect for practically all liquids and granulated products now packaged in round or oblong nozzle-type cans.

Continental's new plastic Flip Cap is permanently hinged to its dripless pour spout—snaps back and stays open, snaps shut and stays shut. Inserted into the top of the can *after* filling, Flip Cap permits higher filling speeds through a larger opening. And the top of the container can be fully lithographed—no solder splashes, no flux spots or heat scorching. For the full story, ASK THE MAN FROM CONTINENTAL!

Cap can't be lost—permanently attached by a hinge. Flip Cap is available in either ½- or ¾-inch opening, and in a variety of colors.

Applied after filling, Flip Cap nozzle can be inserted automatically at 200 per minute. Full lithography on top of can.

*Patents pending

Available in a wide variety of sizes and shapes

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Eastern Division: 100 E. 42nd St., New York 17
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Canadian Division: 790 Bay St., Toronto 1
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one to approximately 10 per cent.

Among the various means of achieving this goal are: (1) Fire polishing to heal flaws; (2) treatment with hydrofluoric acid polishing solution to round off the defects; (3) the application of coatings to the glass surface to minimize damage. The first two procedures are too costly and complicated to be considered commercially feasible at this time. Hence, major interest has been, and will continue to be, directed to bottle coatings.

Bottle Coatings

Among the materials which have been used as coatings are: Sulfur, metallic oxides, waxes, resins, silicones and plastics. Unfortunately, no universally suitable coating has as yet been developed since each in current use fails to fulfill one or more of the basic features required. Sulfur, for example, produces an objectionable white or grayish bloom on the glass. Metallic oxides are somewhat difficult to apply and leave an undesirable sheen. Waxes are water soluble hence not permanent while silicones present labeling difficulties and problems in proper application.

Although resins and plastics have a tendency to reduce transparency and have somewhat limited water resistance, the future developments in bottle coatings will most probably be in the use of these materials. You are probably aware of the heavy plastic coatings now applied to glass aerosols. These are entirely suitable for that purpose, but cost factors do not allow their consideration as protective materials for other than the more expensive containers.

Another aspect of bottle coating which is at present being given considerable attention is the development of procedures for application of ultra-violet absorbing compounds to the glass surface so as to screen out the sun's actinic, or chemically active rays. The short wave lengths of the visible spectrum and the near ultra-violet are considered to be the source of the chemically active radiation responsible for color, odor and flavor changes, as well as loss of potency of drugs.

Of the commercially available glass colors on the market today, only amber and a special formula green offer the protection required for light sensitive products. The lack of aesthetic appeal of amber and the somewhat limited availability of the special green does not allow their use for many products.

Future developments in application of the ultra-violet absorbing materials would greatly aid packers of light sensitive products. Among the problems to be solved before such coatings are commercially available are cost of application, curing procedures and reduction in the color imparted to the containers; but these are not considered to be insurmountable barriers.

Few Coated Bottles

Few product packers are presently purchasing containers which are coated, even though such materials are invariably applied by the glass manufacturer without any increase in cost. Whether the general failure of packers to avail themselves of this insurance stems from lack of awareness of their existence or is a result of inadequate understanding of their function, it can be categorically stated that a proper bottle coating can never do any harm and will in most cases do considerable good.

For those packers, who use glass containers of heavy weight and large size, if we remember basic physics, we find that the kinetic energy of a moving object is calculated from the formula $KE = \frac{1}{2}MV^2$. That is, the energy of a traveling body is equal to $\frac{1}{2}$ of the mass times the square of the velocity. We come to see that mass is an extremely important factor in the effect on the glass surface when two containers collide. Through application of a protective coating the glass surface is lubricated. As a result, the normal direct impact has a tendency to become a glancing blow of decreasing severity.

Keep in mind the fundamental fact that glass is only as strong as its surface and any defect that breaks through the surface materially reduces the performance of a container. The glassman's by-word is "save the surface and you save all." The damage that is done to an empty container is often that which causes failure of the filled item. Realizing that the failure of one of your filled containers involves considerably more financial loss than is the case with a smaller size package, a factor as important as bottle coatings should not be overlooked.

Effect of Line Speed

While on this subject, let us give brief mention to the effect of line speed on container perfomance. It is a natural economic tendency to attempt to fill as many packages as possible within a given time period. Looking again at the formula $KE = \frac{1}{2}MV^2$, we call particular attention to the "V" factor since each time we double the velocity the energy factor is increased by a factor of four. The relationship is not linear and even a slight increase in speed has substantial effect on the performance of glass. The one recommendation we could make here is to advise you to consult with your supplier before making any changes in your line operation. In many cases, this affords the manufacturer an opportunity to change or correct a functional design feature to improve performance.

Thermal Shock

Let us now consider the importance of the thermal shock. Glass is designed to withstand a thermal differential of approximately 70°F. Any attempt to fill beyond this limit sets up sufficient

(*Turn to Page* 145)

WE'RE WIZARDS AT...

serving your container needs

STEEL PAILS

ALL STYLES—ALL SIZES—ONE THRU FIFTEEN GALLONS

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ALL TYPES OF PROTECTIVE INTERIOR LININGS

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POURING EQUIPMENT

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YOUR DESIGN LITHOGRAPHED IN OUR OWN PLANT

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SEAMLESS & PIECED

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packaging notes

Atlantic-Vulcan Manager

George S. McTavey has been named sales manager of Atlantic-Vulcan Steel Containers,

George S. McTavey

Inc., Peabody, Mass., according to an announcement last month by Gordon D. Zuck, president. He is in charge of all sales activities, and will contact users of steel pails and specialty cans throughout New England and the eastern states.

Mr. McTavey was with Nafton, Inc., New York, for the past nine years. Before that he contacted manufacturers of agricultural and industrial chemicals in New England, New York, and Pennsylvania.

—★—

Eastern Cap Moves

Eastern Cap & Closure Co., Baltimore, Md., recently announced removal of its plant and general offices to a new building at 726 N. Kresson Street. The building was expressly designed to accomodate Eastern Cap's operation, provides larger and more efficient facilities, according to C. O. Barnes, the firm's president.

The firm's line includes aerosol caps of all types and closures for glass containers. A new over-all cover cap for pressure packages was introduced recently.

Eastern's telephone number remains unchanged EA 7-5640.

—★—

Colton Branch Relocates

Arthur Colton Co., Detroit, recently announced relocation of its eastern branch and showroom to new and larger quarters at 566 Grand Ave., Englewood, N. J. The branch had been located in New York for the past 35 years.

Warren Smith, eastern branch office manager, is in charge of the new office. It handles sales of Colton pharmaceutical industry machinery, and filling and tabletting equipment in the New England and Middle Atlantic states.

—★—

Black Marketing Manager

Alexander Black was made manager of the Canco division's marketing division, according to an announcement made last month by Robert C. Stolk, vice-president in charge of sales for the Canco division of American Can Co., New York.

Mr. Black succeeds Fenton Dowling who has moved to the west coast area. Mr. Black was formerly western area manager of sales for the Canco division with headquarters in San Francisco. Mr. Black is the son of Carl E. Black, former Canco president.

Alexander Black

Hazel Atlas Sales Head

R. S. Long was recently appointed general manager of glass container sales for the Hazel-Atlas

R. S. Long

Glass Division of Continental Can Co., New York, it was announced by W. M. Cameron, executive vice president of the firm's glass and plastics group.

Mr. Long, with headquarters in Wheeling, W. Va., was formerly manager of field sales operations for Hazel-Atlas and, prior to that, was new products manager for the glass and plastics group. His background also includes sales positions in the Bondware Division of Continental Can, where he rose to general line sales manager for paper containers.

—★—

New Leedpak Container

Leedpak, Inc., New York, custom packager and package manufacturer, recently announced availability of a new type of miniature container for sampling or small-quantity sales of dry granular materials. The "Clypak" container is designed to dispense small amounts of cleansing powders and other similar materials through a novel reclosable shaker top.

The package consists of a foil, plastic, or paper-line tube with a

METRO IS FOR *efficiency experts*

At Metro, the left hand *knows* what the right is doing. We admire efficiency – in fact, we concentrate on it, nurture it and predicate our business on it. Companies that create a million and one products ranging from food and drugs to cosmetics, beer and liquor depend on that efficiency to ease their packaging problems. We are not satisfied with less than the ideal glass container for any given product, because we believe the years of work and thought behind "your baby" deserve the best possible selling showcase. Day-in and day-out, people who depend on glass, depend on Metro – and its famous follow-through service – ***Metromatic!***

MANUFACTURERS OF QUALITY GLASS CONTAINERS

METRO GLASS

DIVISION NATIONAL DAIRY PRODUCTS CORPORATION

GENERAL OFFICES: JERSEY CITY 3, NEW JERSEY

plastic top and bottom. The tube can be labeled in one or more colors to customers' designs. The shaker top is molded polyethylene with a captive lid as an integral part. The lid is designed to snap shut, forming a positive seal to prevent any spillage of the contents. The bottom of the package is a plastic insert.

In addition to sample quantities, the package is designed to be useful for small quantity sale of products which must be carried in purse or pocket. Leedpak foresees volume use of the container for salt, pepper, and other condiments. (See cut page 155.)

—★—

PI Folding Carton Seminar

The Packaging Institute recently held a seminar in Chicago on what is reported to be the most widely used form of packaging today—folding cartons. Among the 19 panel members participating were: Marshall G. Baldwin, Colgate-Palmolive Co., William Castle, Procter & Gamble Co., and S. B. Thompson, R. A. Jones & Co., Inc.

Some of the topics discussed were the use of coatings to provide special barrier characteristics, different types of coatings, high speed adhesive systems, new packaging machines, and other questions relating to folding cartons.

—★—

New CCC Distributor

Reservoir Corp., Boston, is now the New England distributor of general line cans for Continental Can Co. Reservoir services Maine, New Hampshire, Vermont, Rhode Island, Massachusetts and northern Connecticut.

Warehouse stocks of Continental's full line of utility cans, straight-sided and flaring pails, paint and chemical containers, oblong, and five-gallon square cans will be maintained by Reservoir.

Herbert B. Lewis, president, has engaged in the sales and distribution of raw materials and cans for the past 10 years, and formed his own company in 1955.

Colton Advances Kinsley

Lewis H. Kinsley has been advanced to chief engineer of Arthur Colton Co., Detroit, according

Lewis H. Kinsley

to a recent announcement by Leo. P. Gajda, vice-president of engineering. He directs the engineering and development of all Colton products including Colton-Hope filling and Colton packaging machines as well as other equipment.

Mr. Kinsley has been chief engineer of packaging machines since he joined Colton last year. Before that he was vice-president of engineering and sales for the Hope Machine Co., Philadelphia, when it was bought by Colton in 1959.

—★—

Crown Appoints Stern

Crown Cork & Seal Co., Philadelphia, recently appointed Edward Stern to the newly created position of director of marketing.

Edward Stern

He joins Crown following 22 years experience in the bottling industry.

Mr. Stren, who will report to the vice president – sales, will be responsible for evaluation and marketing of all present and new products, marketing techniques, pricing, sales training, advertising and promotion.

Following his graduation from Pennsylvania Military College with a B.S. in chemistry, Mr. Stern was employed by Charles E. Hires Co. in a variety of positions, most recently vice-president in charge of carbonated sales.

—★—

Bickley Named Manager

Container Corp. of America, Chicago, recently announced appointment of Ervin F. Bickley, Jr., as general manager of all national account sales for the folding carton division of the company.

Mr. Bickley joined CCA in 1946 as a package engineer for folding cartons in the Baltimore area. In 1951 he was made assistant sales manager of the Philadelphia paper mill for the New York region. Mr. Bickley was named assistant sales manager of the New York folding carton office in 1952, and in 1954 was made sales manager of the Philadelphia folding carton plants. Later in 1954 he was appointed general sales manager of these plants.

Before his current post, Mr. Bickley had been general sales manager for the company's New York national accounts. His headquarters continue to be in New York.

—★—

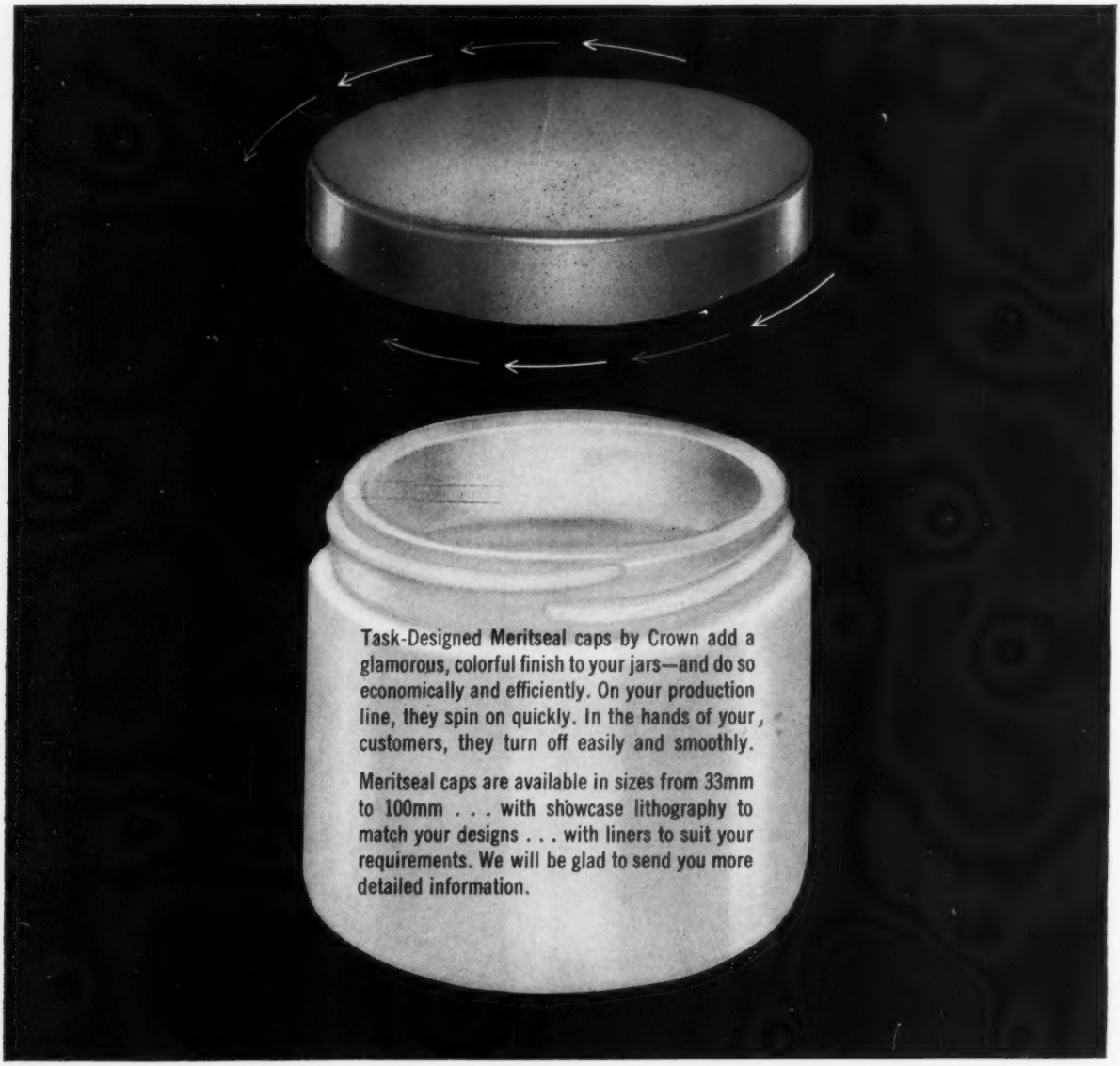
Can Shipments at Record

Shipments of metal cans during 1959 totaled 4.9 million tons, an increase of 3.9 per cent over the previous year and three per cent over 1956, the previous record year, the Can Manufacturers Institute, Washington, D. C., reported last month. Substantial gains were recorded in metal container usage in the miscellaneous non-food category including aerosol products and liquid detergents. In its report, the Institute noted

Meritseal® caps

TASK-DESIGNED

for easy application and removal


Task-Designed Meritseal caps by Crown add a glamorous, colorful finish to your jars—and do so economically and efficiently. On your production line, they spin on quickly. In the hands of your customers, they turn off easily and smoothly.
Meritseal caps are available in sizes from 33mm to 100mm . . . with showcase lithography to match your designs . . . with liners to suit your requirements. We will be glad to send you more detailed information.

CROWN

for closures · cans · crowns · machinery

CROWN CORK & SEAL CO., INC., 9300 Ashton Road, Philadelphia 36, Pa.

that the increased use of plastic bottles for light duty liquid detergent packaging came too late last year to have any major effect on metal can usage. However, it was felt that plastic bottle usage will cut deeply into 1960 production of metal containers for these products.

—★—

Continental Drum Plant

A new fibre drum manufacturing plant has recently been opened by Continental Can Co. New York in Carteret, N. J., where it will produce two kinds of fibre drums for dry products, according to Peter P. Wojtul, vice president and general manager of the fibre drum and corrugated box division.

The 200,000 square-foot plant has been under construction since early 1959 and is the seventh fibre drum installation for Continental Can, which is the nation's principal manufacturer of this package.

Made at Carteret are the "Leverpak," with capacities of 12 gallons to 75 gallons and the "Stapak," with capacities of 2 gallons to 35 gallons.

The "Leverpak" is used as a container for products such as chemicals, detergents, pharmaceuticals, plastic molding compounds, dyestuffs, pigments and colors, foods, insecticides, etc. The "Stapak" is used for products such as detergents and foodstuffs.

—★—

Folding Carton Record

The Folding Paper Box Association of America recently announced that shipments of folding cartons during the first six months of 1960 rose 2.2 per cent above the dollar volume recorded in the same period last year. Tonnage of shipments during this period trailed by three-tenths of one per cent the same period last year.

Dollar volume for the first half of 1960 was $469,600,000, up from $459,500,000 last year. A total of 1,160,100 tons of cartons were shipped during the first half of this year, compared with 1,163,600 last year.

Vulcan Advances Jones

John H. Jones was appointed advertising manager of Vulcan-Associated Container Companies,

John H. Jones

Inc., Birmingham, Ala., it was announced recently by Gordon D. Zuck, president. For the past ten years Mr. Jones has been engaged in advertising and public relations in the southeast and midwest. He will maintain his headquarters at the company's executive offices in Birmingham.

—★—

Acquires JCL Coder

Adolph Gottscho, Inc., Hillside, N. J., coding and imprinting machine manufacturer, last month acquired the patent, selling and manufacturing rights to the "JCL Sideline Coder" from JCL Engineering Co., Los Angeles.

—★—

New Monsanto Film

A new flexible plastic film manufactured from styrene foam and priced to be competitive with paper was announced recently by the plastics division of Monsanto Chemical Co., St. Louis.

The new film, called Santofome, has the appearance and feel of kidskin, and is said to be waterproof, sanitary, lightweight, nonabrasive and grease resistant, in addition to having good insulating and cushioning properties.

Santofome has been fully accepted for food packages by the Food & Drug Administration, according to J. P. Skehan, manager of the division's Santofome products section.

The price of the new material ranges from about $4.00 to $7.00 a 1,000 square feet, depending on type and quantity, Skehan said. It is available in thicknesses from .010 to .030 inches and in rolls 36 inches wide and up to 7,000 feet long.

Glass Containers

(*From Page* 139)

stresses to cause failure.

Since many products are filled hot it is essential that this be considered, especially when containers have been exposed to cold temperature during transit or storage. Preheaters, either through use of warm water sprays, steam injection or radiant heat have proven to be very helpful in reducing the incidence of thermal shock breakage with hot fill products.

In the course of our laboratory examination of containers, we routinely subject products to a series of tests to gain information on product fill, container capacity and any other feature which is deemed to be important for the product under study. In many cases we find conditions such as:

1. Containers being used which are a great deal larger in capacity than is required.
2. Excessive product weight or volume.
3. Inadequate control of product specific gravity.

Container Capacity

Let us look at these more closely. There are probably 20 to 30 different containers which are designated as gallons, ranging all the way from 128 fl. ozs. to 134 fl. ozs. and maybe higher capacity. Our examinations would indicate that some users must not be aware of this situation and do not specify exactly what capacity they require for their product. As a result of use of oversize gallons, packers find themselves giving away a quantity of product per unit and when this is multiplied by the number of

units the figure can be astounding.

In a recent investigation, we found a packer of jellies was placing approximately an excess of 1 oz. avoirdupois per 16 oz. unit because no calculations had ever been made to determine the minimum capacity required to hold 16 ozs. of product. Through use of the proper size container, we were able to save this manufacturer approximately $300-$400 per week in lost product. Your glass manufacturer is most anxious to assist you in preventing situations of this type. The testing required to check on adequacy of containers to fit given product requirements is simple, fast and very accurate.

Unfortunately, in some instances the problem is confused by the fact that the packer does not have sufficient product quality control to afford the calculations required. We are often shocked to learn that even major glass packers do not know the specific gravity of their product. This physical property, which is the weight per unit volume, is an excellent quality control tool, yet many manufacturers who have intricate testing procedures completely ignore this simple check. Whether the specific gravity is checked by use of the weight of a standard volume or with a refractometer, our findings indicate that more of an effort should be made in this direction.

Other than the fact that proper product control affords an opportunity to specify more accurately container capacity requirements, there is the basic economics involved. If a packer is preparing a product which is intended to have 65 per cent solids but instead is packing at 68 per cent he is giving away three per cent of some costly material instead of less expensive water. This amounts to the same thing as the leaking faucet where the one drop you notice doesn't mean much but multiply one drop per second by the number of seconds per day, week, month or year and you find that approximately 1,000 gallons of water have gone down the drain. Make certain that you are not pouring money down the same drain.

In conclusion let me emphasize that the problems I have cited are not theoretical but are based on actual findings by our routine testing group. You may have already solved such problems within your own operation and if such be the case, we congratulate you. If you have not, or if it has been some time since you checked on such matters, we strongly urge you to use the techniques which have become routine procedures in the plants of packaging Goliaths.

If you are in need of assistance, or wish to have some testing done by an outside group, check with your glass supplier's technical representative. He has adequately versed personnel who can be of considerable help on these and many other situations which can have considerable economic impact on your operation.■

important new source for

BLOW MOLDED

squeeze bottles and containers

The advantages of blow-molded thermoplastic containers are now available to the packaging industry from American Plastics. Production now includes blow-molded bottles and shapes to your custom requirements as well as a range of oval-shaped rigid or squeeze bottles and dispensing tips from stock molds.

New facilities for blow molding augment American Plastics' demonstrated capability in injection molding of closures and packages, and in reinforced molding for cases. For complete details about this important integrated supply source for plastic molding, write American Plastics Corporation, Bainbridge, New York.

2545

A P C PRECISION MADE

AMERICAN PLASTICS CORPORATION

Subsidiary of Heyden Newport Chemical Corporation, Bainbridge, N.Y.

Ucon brand propellants put action in products

Why don't you discover UCON *Propellant service, too?*

UNION CARBIDE CHEMICALS COMPANY
Division of Union Carbide Corporation
30 East 42nd Street, New York 17, N. Y.

UCON and UNION CARBIDE are registered trade marks of Union Carbide Corporation

your product belongs

in glass by Brockway

Just as a boy and his Dad go hand in hand, so do consumer acceptance and products packaged in glass. • Your product can win this coveted consumer acceptance when presented in an attractive glass container by Brockway. • Products packaged in glass have proven themselves to be the products most readily accepted on sight by the consumer. Seeing is believing . . . and when they see your product displayed in a glass container, consumer acceptance is assured. • A product that is worthy of consumer acceptance deserves a quality glass container by Brockway.

BROCKWAY GLASS
COMPANY, INC., Brockway, Pennsylvania
Sales Offices in Principal Cities
SUBSIDIARIES: Demuth Glass Works, Inc., Parkersburg, W. Va.
Tygart Valley Glass Co., Washington, Pa.

new trade marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Sani-Clor — This for chemical composition for use as a bleach, a germicide and disinfectant, and a deodorant. Filed Nov. 30, 1959 by Lady's Choice Foods, doing business at Crown Products Co., Los Angeles. Claims use since Aug. 1, 1928.

Diko-O-Plastic — This for plastic compound for filling or repairing ferrous, non-ferrous, or ceramic surfaces. Filed Oct. 19, 1959 by Dike-O-Seal, Inc., Chicago. Claims use since Mar. 5, 1959.

Mono-Rez — This for liquid floor surfacing material which is applied to industrial flooring as a means of surface protection. Filed June 13, 1958 by Staples Floorcraft Co., New York, assignee of Staples Floorcraft Co., New York. Claims use since Feb. 24, 1958.

Curlife — This for hair setting lotion and all purpose hair spray. Filed June 19, 1958 by Beauty-Rama Corp., Chicago. Claims use since May 25, 1956.

Nelita — This for pomade, cold wave lotion, neutralizer, peroxide hair bleach, spray set for hair, shampoo, cream rinse, hair creams, and hair conditioners. Filed July 15, 1959 by Robert G. Mattox doing business at Mattox Laboratory, Hollywood, Calif. Claims use since Sept. 6, 1957.

Gard — This for dust inhibitor, weather proof spray, leather dressing, room dedorant, and fire igniting preparation, contained in and dispensed from aerosol containers. Filed Feb. 25, 1958 by Gard Industries, Inc., Northfield, Ill. Claims use since Dec. 1, 1950.

Rusidine — This for housekeeping and veterinary germicides. Filed Apr. 6, 1959 by Ruson Laboratories, Inc., Portland, Ore. Claims use since Jan. 14, 1959.

Guard — This for household disinfectant-deodorant. Filed May 4, 1959 by Trager Manufacturing Co., Scranton, Pa. Claims use since Nov. 7, 1954.

Jetapak — This for metal containers for storing or shipping large quantity or bulk. Filed July 23, 1959 by Jeta, Inc., Yonkers, N. Y. Claims use since Feb. 10, 1958.

49er — This for paperboard boxes. Filed Jan. 4, 1960 by Fiberboard Paper Products Corp., San Francisco. Claims use since July 8, 1959.

Unipour — This for boxes and cartons. Filed Jan. 11, 1960 by The New Haven Board & Carton Co., New York. Claims use since Oct. 12, 1959.

Klorocide — This for swimming pool disinfectant. Filed Aug. 9, 1957 by Nelson Chemicals Co., Detroit. Claims use since June 13, 1957.

Blue Devil — This for product for water treatment. Filed June 22, 1959 by Howard F. Hawley, doing business at H. F. Hawley Chemical Co., Stockton, Calif. Claims use since May 25, 1959.

Rou — This for hair coloring preparations. Filed Jan. 20, 1960 by Roux Laboratories, Inc., New York. Claims use since Dec. 17, 1959.

Scap — This for permanent wave curling lotion. Filed Jan. 21, 1960 by The Realistic Co., Cincinnati. Claims use since Feb. 5, 1958.

Torch Song—This for perfume. Filed Jan. 27, 1960 by Watkins Products, Inc., Winona, Minn. Claims use since Dec. 21, 1959.

Colorific — This for eyeliner. Filed Feb. 2, 1960 by Alexandra de Markoff Sales Corp., New York. Claims use since Jan. 2, 1960.

Gy-Pol—This for cleansers and polishes, particularly for furniture. Filed Aug. 14, 1959 by Geigy Chemical Corp., Ardsley, N. Y. Claims use since July 28, 1959.

Gy-Wix — This for waxes and polishes, particularly for furniture. Filed Aug. 14, 1959 by Geigy Chemical Corp., Ardsley, N. Y. Claims use since July 28, 1959.

Gy-Wix — This for waxes and polishes, particularly for floors. Filed Nov. 23, 1959 by Geigy Chemical Corp., Ardsley, N. Y. Claims use since Sept. 11, 1959.

Levol—This for leveling agent for wax emulsions. Filed Dec. 30, 1959 by Dura Commodities Corp., New York. Claims use since Nov. 1959.

Bear-Tex — This for fibrous buffing and polishing pads. Filed Mar. 1, 1960 by Norton Co., Troy, N. Y. Claims use since Sept. 15, 1959.

Hep—This for insecticides, insect killer, bug killer, moth proofer, ant and roach spray, insect repellent, and charcoal lighter. Filed Aug. 19, 1958 by B. T. Babbitt, Inc., New York, assignee of Bostwick Laboratories, Inc., Bridgeport, Conn. Claims use since Jan. 3, 1948, on insecticides.

Rat-A-Kate—This for rodenticides. Filed Sept. 9, 1958 by Hayes-Sammons Chemical Co., Mission, Tex. Claims use since Aug. 6, 1958.

Kleenflo—This for filtering and bleaching powder. Filed Feb. 27, 1959 by L. A. Salmon & Bros., Inc., New York. Claims use since Jan. 15, 1938.

Houghto-Safe—This for power transmission fluids—namely, hydraulic fluids of non-hydrocarbon character. Filed Jan. 10, 1960 by E. F. Houghton & Co., Philadelphia. Claims use since Sept. 10, 1953.

Acalaid—This for a solvent designed to be used as an additive for both acid and alkaline solutions to increase their cleaning ability. Filed Mar. 1, 1960 by Oakite Products, Inc., New York. Claims use since Jan. 23, 1960.

Full-Fill — This for chemical preparations used to prevent freezing and overheating in automotive cooling systems. Filed Mar. 4, 1960 by The Dow Chemical Co., Midland, Mich. Claims use since Feb. 15, 1960.

Aerosol — This for wetting agents for use in reducing the interfacial tension between liquids and solids or between two immiscible liquids. Filed Mar. 9, 1960 by American Cyanamid Co., Portland, Me. Claims use since Aug. 20, 1937.

Sonoplex — This for chemical and traffic resistant coating for concrete, metal, and wooden surfaces. Filed Dec. 31, 1959 by Sonneborn Chemical and Refining Co., New York. Claims use since June 1957.

Sprayzall—This for spraying devices employing a propellant in a pressurized container. Filed Jan. 8, 1960 by American-Marietta Co., Chicago. Claims use since Sept. 4, 1959.

Scan—This for medical spray-on dressings. Filed Jan. 29, 1960 by Johnson & Johnson, New Brunswick, N. J. Claims use since Jan. 18, 1960.

Breakwater—This for bead detergents for laundry, dishwashing, and general cleaning purposes. Filed June 10, 1958 by National Cooperatives, Inc., Albert Lea, Minn. Claims use since Jan. 8, 1951.

★

Lowers Polyethylene Price

Allied Chemical Corp., New York, recently announced a five-cent per pound reduction in the price of AC polyethylene, emulsifiable grade 629, and plans to begin immediate construction of a new plant to manufacture various grades of low-molecular weight polyethylene at Orange, Tex. The reduction makes the price 35 cents a pound in truckload quantities.

Principal uses for low-weight polyethylenes are in floor polishes, package coatings, and textile finishes.

Your challenge of the EXCITING 60's

—50% MORE NEWLYWEDS!

LET ANCHOR HOCKING GLASS PACKAGE ENGINEERING HELP YOU GET YOUR SHARE OF THIS GREAT NEW MARKET OF THE 60's!

Forecasts show during the 1960's there will be 50% more people in the "young married" age group. Result: more new households, more new markets for your products.

Capturing a bigger share of these markets calls for stepped-up production. That's where Anchor Hocking's Engineering Division can help.

It designs, develops and improves glass containers so that they will easily withstand the knocks of tomorrow's higher speed packaging lines . . . closures which perform efficiently and provide dependable seals. And, it maintains effective field engineering service to help you solve packaging problems at your plants.

In addition, the Engineering Division tests, checks, controls and supervises all manufacturing processes to bring you products of uniform, high quality . . . containers and closures which deliver their contents to the consumer safely and economically. Anchor Hocking Glass Corporation, Lancaster, Ohio—bringing you the extra values of *specialization* in glass packaging.

ANCHOR HOCKING

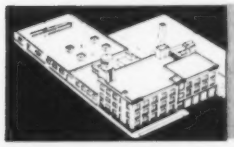
Get set for the exciting 60's with Anchorglass® Packaging—put an Anchor Man on your team

only mother nature does a better packaging job

This is perhaps the ultimate in fine packaging. Attractive, functional, efficient. Even a zipper couldn't improve it! We readily admit that even with the advanced packaging techniques, modern equipment and time-tested skill we have at G. Barr & Company, Mother Nature—in her field—does a superior packaging job.

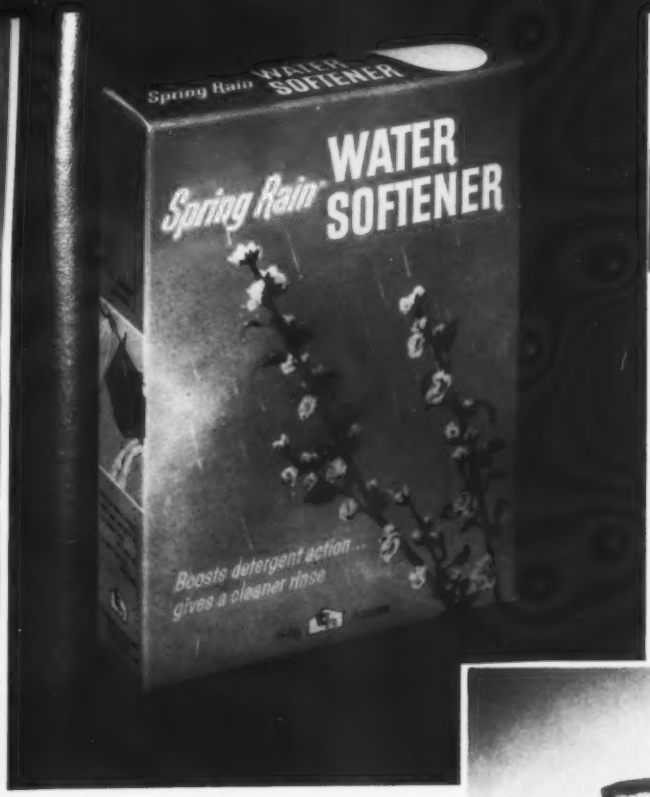
But AEROSOLS! That's a different matter! Private label aerosol manufacturing has been our field for over ten years. And if the hundreds of millions of perfectly formulated and filled packages we've made for marketers of famous brand name products doesn't convince you that we are tops in this specialized field, we're ready to prove it with a test run of a few thousand packages of your product. In other words: If Mother Nature doesn't do YOUR packaging, call on us!

G. BARR & COMPANY
Private Label Aerosols
GENERAL OFFICES: 3601 S. RACINE AVE.
CHICAGO 9, ILLINOIS



ACRES OF AEROSOL PACKAGING FACILITIES

WHAT'S NEW?

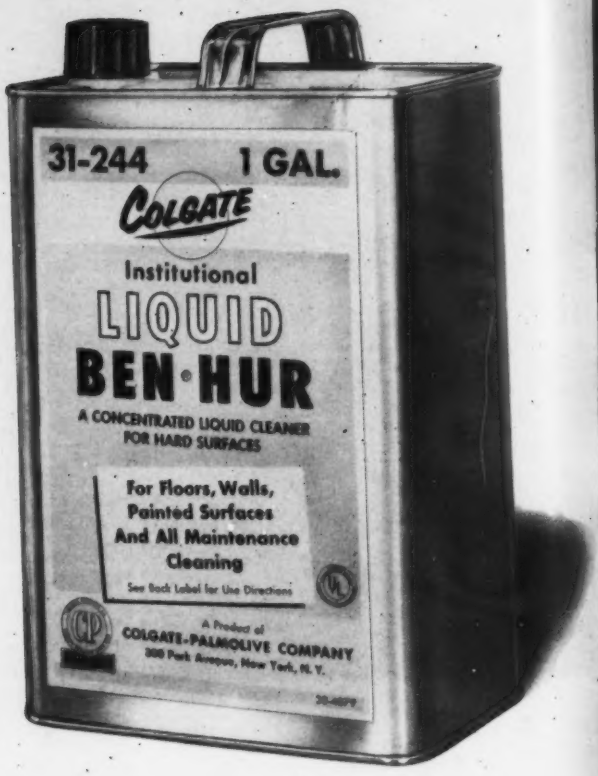


Novel package with "prestige look" has been adopted by Tidy House Products Co., Shenandoah, Ia., for its new "Spring Rain" water softener. Carton, lithographed in four colors and varnished, features full-color reproduction of new rose buds in soft spring rain. Dominant colors are pink and light blue. Surface design, by Carl Strobe of Tidy House, is aimed at subtly conveying product's function. Tidy House feels carton decoration represents "complete break with the harsh-colored, hard-sell school of package design" for soap type products. Idea is to "set item apart from competitors on supermarket shelves," says the maker. Container Corp. of America, Chicago, designed and manufactures seal-end folding carton, which is fitted with perforated pour spout. "Spring Rain" is being sold in grocery and supermarket outlets in the Great Lakes area.

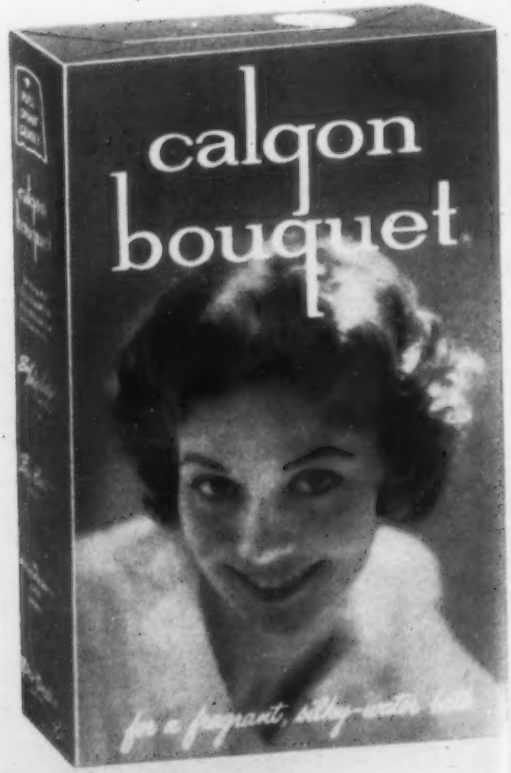
Resembling old-fashioned steamer trunks, new display cartons containing 12 eight-ounce plastic bottles of "Ten-O-Six" skin lotion have been adopted recently by Bonne Bell, Inc., Cleveland. Cartons, designed and manufactured by Continental Can Co's box-board and folding carton division, are made from a single piece of solid bleached sulphate clay coated board, incorporating a simulated hinge cover and front lock. Surface, printed in five colors by letterpress, is varnished.

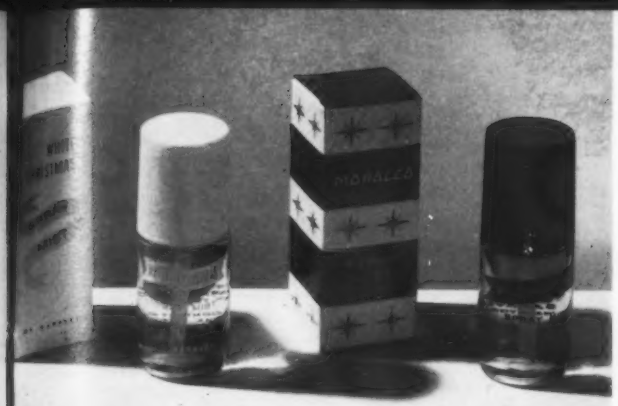
"Linco" laundry bleach in powder form has been reformulated, repackaged and renamed by Linco Distributing Co., Chicago. Principal change in the product's formulation is the inclusion of "ACL 59," a dry chlorine-base material made by Monsanto Chemical Co., St. Louis. The product, formerly trade named "Linco Dry Bleach," is a companion bleach to the liquid version sold under the "Linco" name in the Chicago area for many years. Jim Nash Associates, Chicago designed the new package which is white and blue, with red letters. The new version of "Linco Laundry Bleach" was developed following the acquisition of Linco by Climalene Co., Canton, O., in June, 1959.

KINGS
MEN
Luxury Shave


31-244
1 GAL.
COLGATE
Institutional
LIQUID
BEN·HUR
A CONCENTRATED LIQUID CLEANER FOR HARD SURFACES
For Floors, Walls, Painted Surfaces And All Maintenance Cleaning
See Back Label for Use Directions
A Product of
COLGATE-PALMOLIVE COMPANY

Friendship Garden
BUBBLE BATH
LIQUID
Friendship Garden
BUBBLE BATH


calgon
bouquet



CAPTIONS: FACING PAGE

New "Kings Men" luxury shave, an aerosol shave lather, last month was added to the line of men's toiletries bearing that name by Lentheric, Inc., New York. Packaging is white Crown "Spra-tainer," decorated with black and gold, and topped off with bright red plastic overcap. Regularly priced at $1.00, Lentheric is offering new aerosol lather at an introductory price of 79 cents.

"Ben Hur" institutional liquid detergent that is claimed not to harm hard surface floor coverings or strip wax, was marketed for the first time last month by Colgate-Palmolive Co., New York. A concentrated liquid cleaner that may be converted to a wax stripper by the addition of ammonia, the maker says it cleans without producing "excessive" foam, lifts "stubborn" soil, and does not form scum when used with hard water. Liquid "Ben Hur" is said also to be safe for use on concrete, marble and terrazzo floors because it contains no alkaline salts. The product is packaged in one gallon cans (shown), six to a case, and in five and 55 gallon drums.

"Friendship Garden" bubble bath liquid is being introduced this month by Shulton, Inc., New York. An emerald green liquid, the new product is packaged in a six-ounce, clear, hobnail bottle, which comes in a white "Kromekote" flower-printed gift carton to retail for $1.00 plus tax. New bubble bath is scented with fragrance matching other toiletry items in the "Friendship Garden" line.

Recently introduced by Calgon Co., Pittsburgh, is "Calgon Bouquet" bath water softener. New scented product is companion item to "Calgon" water conditioner and "Calgonite" for electric dishwashing. "Calgon Bouquet" is packaged in a pink, foil-wrapped, one pound, two ounce container featuring photograph of a cover girl.

CAPTIONS: THIS PAGE

"Morocco" and "White Christmas" are tradenames for two new 1½ ounce spray mists now being marketed by Saravel, Inc., New York. Filled by Aero-Chem Laboratories, Inc., Bridgeport, Conn., in uncoated glass bottles by Foster-Forbes Glass Co., Marion, Ind., bottles are equipped with "B" valve and mechanical break up button supplied by VCA, Inc., Bridgeport. Pharma Plastics, Inc., Baltimore, supplied cap, and Seri-Print, Inc., Waterbury, Conn., did the silk screening.

"Mini-Drum," new 12-gallon drum, believed to be the first of its size in the maintenance and industrial products fields, was introduced last month by the service products division of S. C. Johnson & Son, Inc., Racine, Wis. The new size container is being used for Johnson's building maintenance and metal-working products. "Mini-Drum" is said to enable distributors of Johnson's maintenance products to offer them at quantity prices to small quantity users. A free, heavy duty drum cradle is given to each purchaser. The new container has a non-spill pouring spout.

Shulton, Inc., New York, introduces next month "York Town 1781," a new line of grooming aids for men. Inspiration for the line came from the ancestry of Shulton's president, George L. Schultz, which includes Francis Lightfoot Lee, a signer of the Declaration of Independence and a Yorktown (Va.) resident. After shave lotion and cologne are packaged in glass bottles which are replicas of early blue and green apothecary jars and are embossed with tiny gold gun carriages. The bottle caps are reproductions of Washington's gold inaugural buttons. Introduction of the "York Town 1781" line will feature individual packages of cologne for men at $4.50, after shave lotion at $3.50, and a gift set for $10.00 which also includes shaving talc in a fluted metal container.

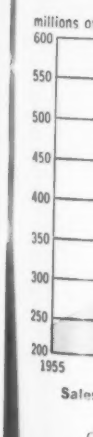
Merry Manufacturing Co., Cincinnati toy manufacturer and producers of miniatures of well known merchandise brands as components of its toys, announced formation last month of a miniature brands division devoted to making of product miniatures for business and industry. Replicas of virtually every type of packaging — plastic containers, cans, bottles, cartons—are designed to precise scale. Miniatures are made of paper, boxboard, plastic, glass, and in the form of lithographed cans. They are said to be accurate enough to be used as salesmen's samples, displays, samplings, and premiums. Another use is as "calling cards" along with or attached to salesmen's cards. Brands already being "miniaturized" include "Tide," "Dutch Cleanser," "Windex," and others.

How The Magic Touch of Aerosol Packaging Skyrockets Sales!

Wherever you go this summer, you'll find more and more aerosol products increasing people's enjoyment of outdoor living. Use of aerosol garden sprays is at an all-time high. Demand for aerosol insect repellants is growing "like Topsy." Spray-on sun tan lotions are gaining increased popularity. And so are the many newer types of aerosol products, such as charcoal lighter and outdoor grill cleaner.

If your product has "aerosol potential," now's the time to take advantage of the many helpful services General Chemical offers. As a leading producer of aerosol propellants, General can provide you with valuable technical data and the latest market information. We can tell you about promising new aerosol formulations developed in our laboratories. And we can help you select a contract filler who will put up your product for test marketing or full commercial production.

Why not take advantage of these helpful General Chemical services *now?* Just call or write.



. . . . in aerosols?

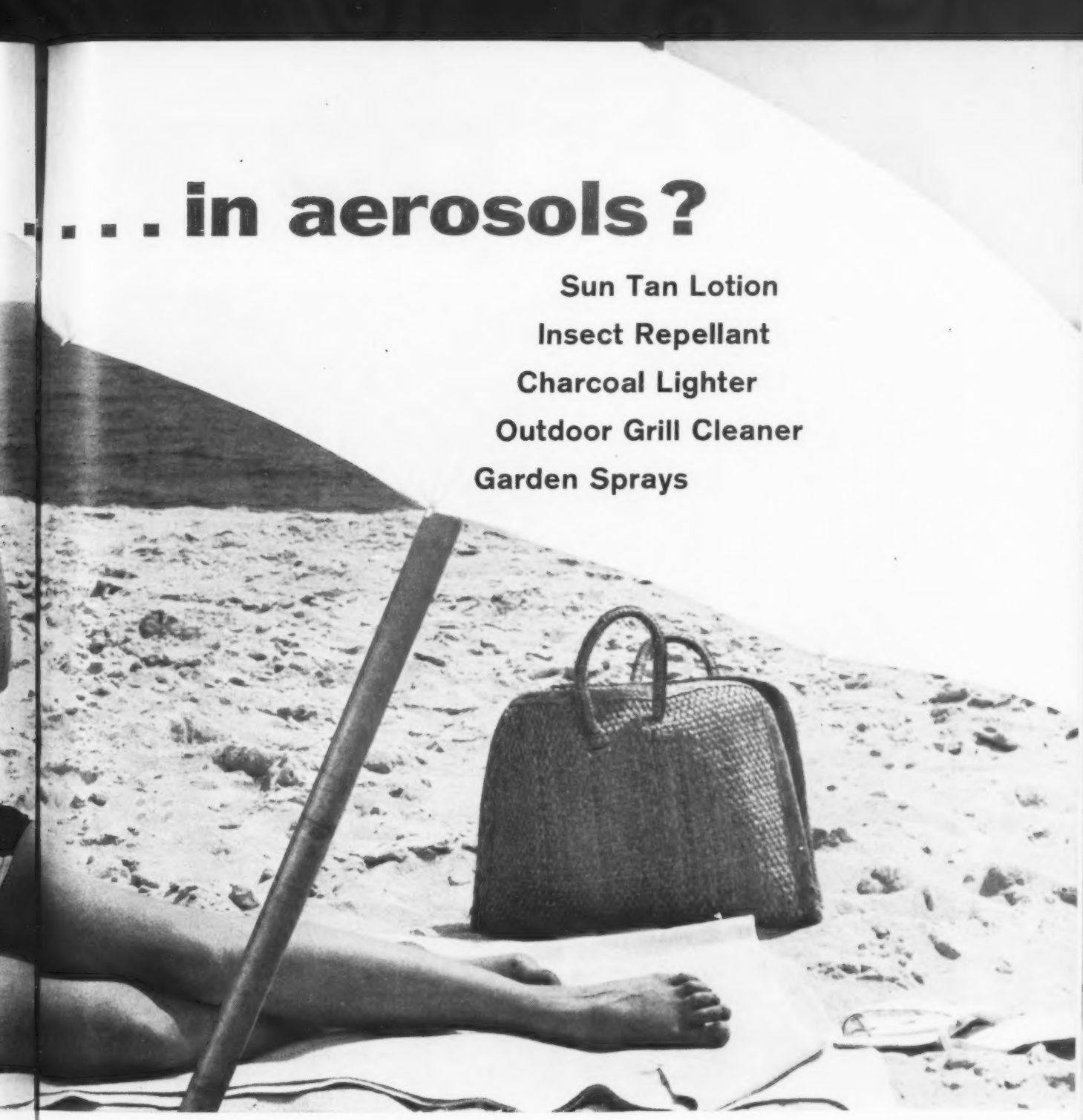
Sun Tan Lotion

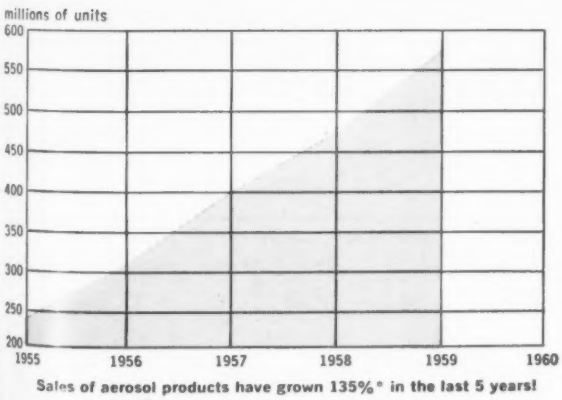
Insect Repellant

Charcoal Lighter

Outdoor Grill Cleaner

Garden Sprays





Sales of aerosol products have grown 135%* in the last 5 years!

*Estimated by Market Surveys Department,
General Chemical Division, Allied Chemical Corporation

genetron®

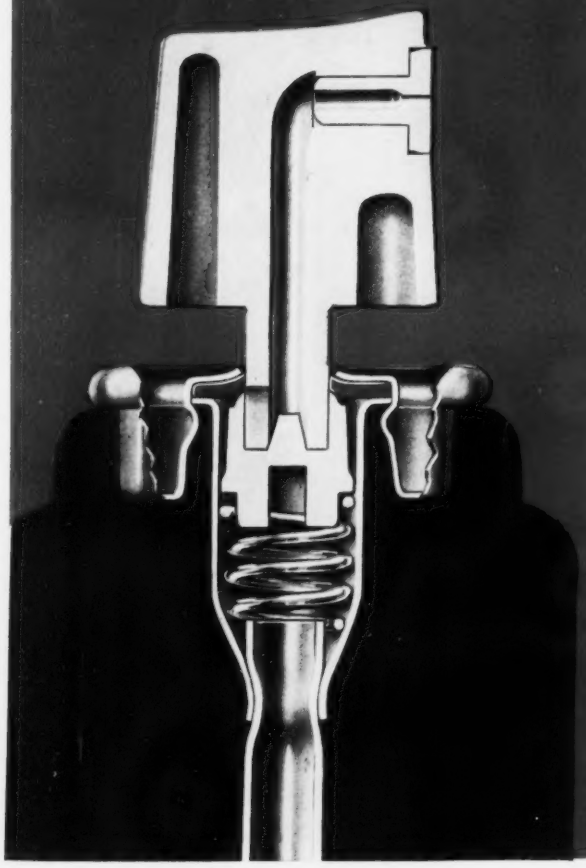
aerosol propellants

Putting the "push" in America's finest aerosols

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

ANATOMY OF AN AEROSOL VALVE



1. Pressure fills fast because it does not fill through metering orifices.
2. All metering orifices in spray head easily accessible for cleaning.*
3. 360° at spraying surface—twist top.
4. No small orifices drilled in metal parts.*
5. Curved surface on spray button reduces finger fatigue.
6. Spray heads easy to apply after pressure filling.
7. Delivery tubes swedged on—not slipped over—valve body.*
8. Excessive swelling of gasket not detrimental to operation of valve.
9. Spray pattern can be varied completely by changing only spray head.
10. No dissimilar metals used in valve parts.

RESULT: ASSURES FASTER, TROUBLE-FREE FILLING, AND PRODUCES UNIFORM, MISTIER SPRAY PATTERNS

Only Newman-Green gives you *all* these features and advantages in an aerosol valve. How about service? It's complete at Newman-Green . . . whether your order is large or small. Complete from engineering consultation and design . . . all the way to manufacturing and prompt delivery of your valves.

For the most dependable valves and most reliable service . . . for aerosol valves that spark consumer acceptance . . . contact your Newman-Green sales representative today. He'll be glad to help you solve your aerosol packaging problem.

*Exclusive Newman-Green features.

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

MAIN OFFICE & PLANT
151 Interstate Road
Addison, Illinois
KIngswood 3-6500

EASTERN DISTRICT
415 Lexington Avenue
New York 17, New York
MUrray Hill 7-7147

WESTERN DISTRICT
1144 East Meda Avenue
Glendora, California
MAdison 6-9980

The Filler's Role in PHARMACEUTICAL AEROSOLS

By A. P. Mason and J. W. Hart*,
John C. Stalfort & Sons, Inc.,
Baltimore, Md.

Part II

AT this point, all of the many problems concerning packaging have been worked out. Our product is now ready for production.

But is it? How are we going to handle it? Can we, the filler, create a satisfactory word picture of our operation to convince our customer it can be done, and reproducible as to the same quality of our laboratory tests. I hardly think so. As part of our development project with the pharmaceutical people, we must have a test run. This is just as essential as the first step in development. It's familiarization!

Actually this test run serves another and most important function for the customer. It provides him with the units necessary for clinical testing.

To some, this cooperative effort, at this point, seems more like a tug-of-war. Actually, it is similar to a tag team match in wrestling. When one's energy, or in this case knowledge, is exhausted in this particular phase of the battle, the other part of the team takes over. Together they are almost unbeatable, but separately they are a pushover.

Before scheduling this test run, the aerosol laboratory has been working on the method. That is, how can we fill this product in the simplest, safest and shortest way. The more steps there are, the more control steps have to be taken. The shortest distance between two points is a straight line. The shortest distance between active ingredients and finished product is a straight line. Our problem is to find the shortest straight line from the first step to the last. The less equipment used, the less the possibility for contamination. Some people, and we include ourselves, find it profitable to have separate portable tanks for pharmaceutical compounding and processing. These are not used for any other operation.

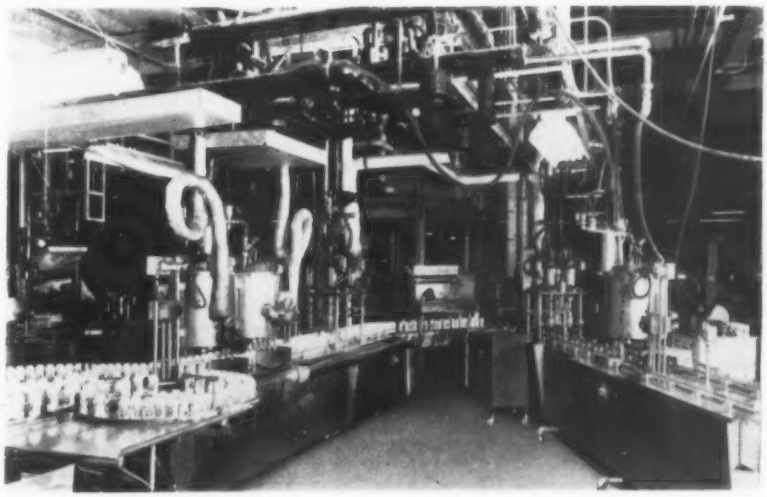
After all the preliminary plans are formulated, we give a protocol to the customer which encompasses the specifications and testing procedures on all ingredients which go into the container. And the same testing is done for all component parts, which we call pre-production checks. They tell us if the particular component conforms to specifications. Included in this are our production methods, a short description on how the product is handled. And finally our in-line controls and our laboratory controls.

These controls are just about standard for our industry, but on almost any product there are special tests for specific products. As you would guess there are many for the pharmaceutical industry by the very nature of its business.

Let's take a look at the facilities. As is well known, the equipment required depends on the product to be manufactured.

The two basic methods of producing aerosols are cold filling and gassing (pressure filling). Most products can be loaded by either method. Let's examine them individually for a pharmaceutical product. With a pharmaceutical aerosol, usually the concentrate is

Shown are two high-speed aerosol filling lines in the Pressure-Pak plant of John C. Stalfort & Sons Company in Baltimore.



*Paper presented during 46th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago, May 17, 1960. Mr. Mason is director of the Stalfort Pressure-Pak aerosol laboratory, and Mr. Hart is director of new products.

Aerosol Awards...

The ninth annual AEROSOL PACKAGE CONTEST will be held in conjunction with the 47th Annual Meeting of the

CHEMICAL SPECIALTIES MANUFACTRERS ASSOCIATION

HOLLYWOOD BEACH HOTEL, HOLLYWOOD, FLA.
DECEMBER 5-8, 1960

. . . will include judging and selecting of best aerosol packages of the year

The aerosol package competition and awards will be divided into fifteen classes as follows:

1. Automotive products.
2. Insecticides, repellents, moth proofers.
3. Room deodorants.
4. Paints, enamels, other protective coatings; paint remover.
5. Other household products — polishes, glass cleaner, rug shampoo, water repellent, snow, etc.
6. Shave products.
7. Hair preparations.
8. Perfumes, colognes, toilet waters.
9. Other personal products — shampoo, body deodorants, dentifrices, sun tan oil, etc.
10. Food products.
11. Horticultural products.
12. Medicinal and pharmaceutical products.
13. Veterinary and pet products.
14. Industrial products — lubricants, belt dressings, stencil inks, etc.
15. Foreign products.

. . . a top award for "best in the show" will also be made

Rules of the contest:

1. Awards will be made on the basis of general sales appeal of the complete package. The awards are given for package design only and do not constitute endorsement of the product, container, valve, label, or other part of the package, nor do they constitute a determination that the package or labeling meets applicable state or federal laws or regulations.

2. All entries must be made in the name of the brand owner or marketer. Products must have been freely offered for sale prior to September 1, 1960.

3. Entries will close October 15, 1960. All entries should be sent as soon after September 1 as possible to the Committee at the CSMA office, and should comprise one completely assembled empty container with attached tag showing (a) name and address of brand owner; (b) class in which entry is made by number noted above. Send one completed entry blank for each package entered. (Entry blanks will be sent promptly to anyone on request.)

4. Entries may be made in as many classes as desired by the same marketer or brand owner.

5. Entries are open to any brand owner anywhere and are not restricted to members of CSMA. There are no entry fees or other charges to entrants. The committee reserves the right to reclassify any entry prior to judging and to reject any entry it deems advisable.

6. Best packages will be selected in fifteen classes noted above and a "best package in the show" will be chosen. Judging will be by a group of qualified persons. Their decisions will be final.

For information and entry blanks, write to
AEROSOL PACKAGE AWARDS COMMITTEE
Chemical Specialties Manufacturers Association
50 East 41st St., New York 17, N. Y.

MAKE PLANS FOR YOUR ENTRIES NOW!

the most expensive ingredient. This is not the case with most aerosol products we are accustomed to handling. For this reason, it is a good idea to keep the concentrate at a minimum. On the other hand, it is considered good pharmaceutical practice to keep carriers at a minimum for reasons of potency, faster action and to avoid deleterious effects.

In cold filling, the concentrate and the propellant are chilled and added separately into the container. Can you imagine cold filling a five per cent concentrate for a 50 gram fill? The loader would need more concentrate for the filling system than for the entire order.

How about pressure filling the same product? Here the question is: Is it profitable to gas 95 per cent propellant? Wouldn't it be better to fill the concentrate warm, and add the propellant in four shots, each shot getting progressively heavier?

Besides providing the loader with a good economical method, this approach enables us to cut down on the amount of filling equipment required to a single machine and one tank. Also, it is the shortest route, with a consequent reduction in the possibility of contamination.

What we have been discussing thus far is a single product. There are other products that would require cold filling, pressure filling with liquefied and compressed gasses, and some products I'm sure that are adaptable to one stage filling. Classical filling methods are not always feasible, and ingenuity and experience can never be bought. Wouldn't the contract loader be foolish to install equipment to fill a single product, such as the one mentioned above? Let's face it, most contract fillers say "all I offer is service." We think this a a gross understatement. The contract filler offers service, experience, quality, and versatility. All he asks in return is volume.

Possibly I have strayed from our topic of facilities, but I think we all understand what is needed.

As was mentioned in the very first part of this discussion, the primary need in pressure packaging pharmaceuticals is not just a plant, but a well-maintained and well-organized plant. If we may be so bold as to give advice to our competition, it would be this: Always try to find out what your potential customer thinks of your plant. Remember, his first impression of your plant is probably also his most lasting one.

For loading pharmaceutical aerosols, the contract filler requires refrigeration equipment, tanks for propellants, driers, filters, screens, etc. Obviously, mixing tanks, preferably of stainless steel, as well as filling lines are needed for pressure packaging drug and pharmaceutical products. It is advisable to set up filling lines for these products in separate rooms or away from other lines.

Normally, I would just mention coders in passing. However, with drug products coders take on added significance. In fact, an illegible code is a major defect in the packaging of a drug or pharmaceutical product. In the pharmaceutical industry a unit without a code is not marketable and can be a source of trouble for the marketer.

The balance of the packaging equipment required for loading aerosol pharmaceuticals is standard. Included are labellers, cappers, and compressers. Finally, after the pharmaceutical is packaged it is stored in a separate storage area, and upon notification of release, is shipped to the customer.

The research laboratory of the custom loader is probably one of the most important departments in the plant. The laboratory represents the biggest overhead of any phase of the filler's operation. It should include a research section with personnel thoroughly familiar with the pharmaceutical field. These people, through their understanding of pharmaceuticals, can aid in the conception of and research on new products.

Quality control is another important function of the laboratory. This calls for a capable staff that knows the many aspects of pharmaceutical packaging. The quality control section usually works hand in hand with quality control representatives of the pharmaceutical company.

Generally speaking, when we deal with pharmaceuticals, we are talking about small containers. This calls for more exacting and more highly sensitive measuring and recording devices in both plant and laboratory control operations.

It is not within the scope of this paper to establish standards for quality control. However, we feel it is necessary to mention that any control operation must include: (1) pre-production inspection, (2) in process controls, (3) laboratory controls, and (4) finished product inspection.

One very important aspect of the filler's role in pharmaceutical products is the economies offered. The contract filling plant is a ready-made production testing ground which provides the pharmaceutical marketer with an aerosol product without his having to hire new production personnel, or obtain expensive equipment and additional storage space. Using the

(*Turn to Page* 168)

OUR ROOTS ARE DEEP, OUR AIM IS HIGH

but Valves don't grow on trees

Some fifteen years ago, the aerosol industry was born. Shortly after, the Precision Valve Corporation began. As the industry grew, Precision did too, in research, in discovery, in development.

Today, with over 500 employees and more than 60,000 square feet of manufacturing space devoted to over 10,000 different combinations of specifications for aerosol valves, Precision works with the industry to create and develop new aerosol designs to improve current procedures.

Now, on the threshold of further expansion, Precision rededicates itself to serving the aerosol industry and its customers. A major portion of Precision's new plant program will be directed toward research and development; its modern production facilities further improved; its friendly hand extended and dedicated to helping everyone.

Yes, Precision's roots are deep . . . its aim high!

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Changes at Peterson

A number of advancements and new appointments of personnel at Peterson Filling & Packaging Co., Danville, Ill., were announced late in August by H. E. Peterson, the firm's president.

J. K. Shea

J. K. Shea, formerly eastern sales manager, was advanced to sales manager. Mr. Shea has been with Peterson since its inception in 1955. William L. Rowley, previously plant superintendent has been appointed plant manager. He joined Peterson in 1955 as quality control supervisor. In his new position he replaces Julius Hegeler who has assumed full time duties as the firm's treasurer.

William L. Rowley

Larry Ligocki has been advanced to the newly created position of chief machinist. He came to Peterson in 1956 from Modern Machine Co. of Danville.

At the same time Mr. Peterson announced the appointment of Marie Lambert as a member of the firm's research staff. Her previous associations include Prairie States Oil and Grease Co., where she was research supervisor, and Michael Reese Research Foundation where she worked as a specialist in hematology and urology.

Other recent appointments at Peterson include Robert S. Black as foreman of the shipping department and Robert Rowley as foreman of the receiving department; David L. Parker as chief chemist and Roy Bush as quality control supervisor.

Peterson Filling & Packaging Co. established in 1955 by H. E. Peterson, president, started its operations on the former site of the Hegeler Zinc Co. Today, the firm contracts to undertake conventional liquid filling and aerosol loading for other companies. Mr. Peterson is a former president of the Chemical Specialties Manufacturers Association and is very active in the group's Aerosol Division.

Officers of Peterson Filling include besides Harry Peterson, president; R. J. Peterson, vice president; E. C. Hegeler, secretary; Montfort A. Johnsen, director research; and J. P. Peterson, purchasing agent and office manager.

★

Arndt Puritan Sales Head

The appointment of David C. Arndt as New York district sales manager for Puritan Aerosol Corp., Boston contract loader was announced recently by Harvey White, president.

In his new position, Mr. White said, "Mr. Arndt will help direct and implement Puritan's

Marie Lambert

Larry Ligocki

David C. Arndt

current sales expansion program." His headquarters will be in Bronxville, N. Y.

Mr. Arndt was formerly a member of the "Ucon" propellant marketing group of Union Carbide Chemicals Co., Division of Union Carbide Corp., New York. He was primarily concerned with the marketing of propellants to aerosol fillers and marketers.

A native of Philadelphia, Mr. Arndt received his B. A. degree from the University of Pennsylvania. He served in the United States Army in 1950 and 1951 and was attached to the 28th Reconnaissance Company, Fort Knox.

★

Larger Purse Size Aerosol

A new 13½ cc. stainless steel inner container for purse size aerosol units was introduced recently by Emson Research, Inc., Bridgeport, Conn. Emson is offering the new unit as a complete package with metered valve assembly at a price competitive with the conventional 10 cc. purse size package. The new model is said to yield 100 to 125 shots more than the original size.

An outer case made of anodized aluminum and available in a wide range of finishes is being offered to go with the new unit. Complete packages and components for the Emson 13½ cc. container assembly will be manufactured exclusively by VCA Inc., Bridgeport, Conn., Emson's parent company. Sample units and detailed information may be obtained from Emson at 118 Burr Court, Bridgeport.

New 13½ ounce stainless steel inner container for purse size aerosol units announced recently by Emson Research, Inc., Bridgeport, Conn.

★

Ben Venue Aerosol Line

Aerosol packaging of a sterilizing pharmaceutical gas is now being done by the Ben Venue Laboratories, Inc., Bedford, O., manufacturer and processor of ethical drugs. The gas is a mixture of ethylene oxide and "Freon" and is non-flammable.

The packaging is being done by cold filling on a new line manufactured by Kartridg Pak Co., Mount Prospect, Ill.

Ben Venue has been dealing in aerosols for two years. The firm previously had been using a contract loader to do its aerosol packaging. S. L. Morgan, manager, says that by operating their own packaging line Ben Venue is getting "more even fill and better supervision of sanitation to meet the requirements of pharmaceutical packaging."

Yardley of London, Inc., New York, recently began marketing its toilet water products, in small and large sizes, in seamless, extruded aluminum containers, tradenamed "Peerasol," manufactured by Peerless Tube Co., Bloomfield, N. J. Five Yardley product lines are involved: "Flair," "Lavender," "Red Rose," "April Violets," and "Bond Street." Two sizes are available: a four-ounce "Peerasol" with self-locking metal top retails for $3.25, and a two and one-quarter ounce container with plastic top for $2.00. The plastic top is an atomizer with a tapered concave saddle for improved finger-tip control, while the top on the larger size locks when turned clockwise. Yardley converted these toilet water products after it had marketed "Jetstream," a shaving lotion in a three-ounce "Peerasol."

★

Revolving Shelf Display

Krylon, Inc., Norristown, Pa., recently introduced a new display stand that has four revolving shelves. Each independently revolving shelf holds 48 16-ounce aerosol cans. The whole rack, which stands about 58 inches high, has space for 192 16-ounce cans, plus room at the base for large bulk cans of Krylon's "Rust Magic Metal Primer."

The display is available to automotive jobbers and dealers at the price of $25.00 with the purchase of 192 16-ounce cans of Krylon spray paint. As a bonus, Krylon gives jobbers or dealers 24 16-ounce cans of any of the follow-

contract filling / private label guide

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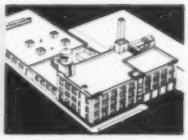

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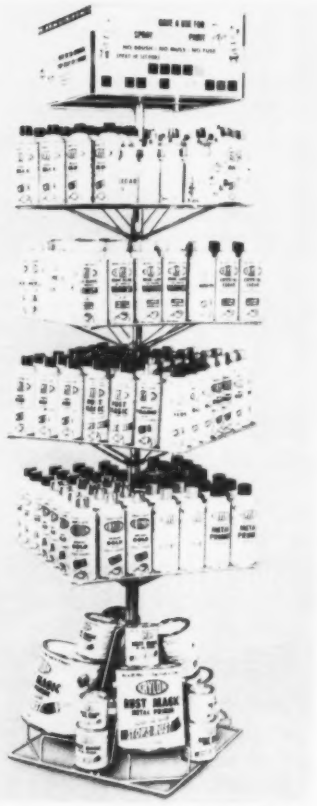
(From Page 164)

ing products: "Rust Release," "Cleaner & Degreaser," "Rust Magic," "Glowing Fluorescent Spray Paints," "Silicone Sprays," "Zinc Chromate Primers," "Rust Veto," and "Tenac."



New floor display with four revolving shelves is now available from Krylon, Inc., Norristown, Pa. Standing 58 inches high, the rack's total capacity is 192 16-ounce aerosol cans, 48 to a shelf, plus room at the base for bulk cans of Krylon's "Rust Magic." Price is $25.00 with enough cans to stock the display.

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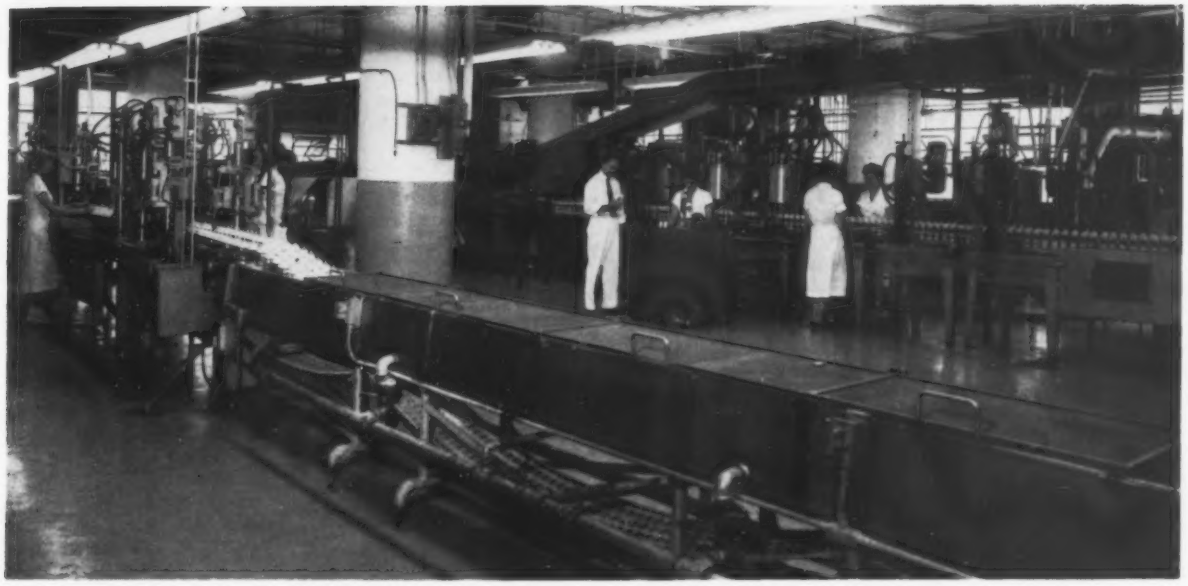
★

Aerosol Packaging Doubled

Rexall Drug Co., nationwide drugstore chain, recently installed a second complete aerosol line in their St. Louis plant. The new line is an "800 series" auto-



New pressure filling line at St. Louis, Mo., plant of Rexall Drug Co. is an automatic straight line built by Kartridg Pak Co., Mount Prospect, Ill. Line consists of electromatic filler, purging unit, crimper, pressure filler, pressure tester, and water bath (foreground). Capable of loading up to 120 units a minute, this is second Rexall line by Kartridg Pak.

matic straight line built by Kartridg Pak Co., Mount Prospect, Ill.

The new line consists of a filler, purging unit, crimper, pressure filler and tester, and water bath. Up to 120 cans or bottles per minute can be pressure filled. This new line, combined with another one by Kartridg Pak for cold filling, enables Rexall to package any product with any propellant.

Questions about superior

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There's no substitute for dealing directly with "the boss," and that's the way it is at STROUSE, INC. Every job that goes through the plant is followed personally by the man who founded the company and heads it today. The two STROUSE plants are big enough to accommodate any size contract filling job. Customers are being pleased all over the U. S. Yet at STROUSE, INC. you get the bonus of "personalized service" right from the top.

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aerosol patents

No. 2,940,641. Liquid Spray Dispenser, patented by Kenneth A. Norrish and John C. White, Bridgeport, Conn., assignors to Bridgeport Metal Goods Manufacturing Co., Bridgeport. For use in combination with a disposable valve-operated, pressurized container of the type having an axially depressible tube at one end forming a combined valve and outlet and normally urged axially outward to a closed position, the patent covers a permanent casing comprising an open-ended receptacle member for said container, a removable cap member telescopically mated with said receptacle member and variable in position along the telescopic axis, said cap and receptacle member being adapted to support said container with the operating axis of its valve tube in operative alignment with said telescopic axis, insert means in said cap member engaging the valve tube and forming a passage leading to the exterior of said cap member for the discharge of contents of the container, said insert means having a tube-engaging shoulder for operating said valve upon relative telescopic movement of said cap and receptacle members, one of said members having a recess in the telescoping surface thereof, and a projection extending laterally from the telescoping surface of the other of said members to fit within the said recess when said cap member is telescopically fitted with said receptacle member, the axial dimensions of said projection and said recess being proportioned to permit relatively frictionless telescopic movement of said cap member relative to said receptacle member substantially throughout the axial operating range of said valve.

No. 2,941,700. Valve Actuator for Pressurized Liquid Spray Containers, patented by Jean M. Gable, Kansas City, assignor to Howard S. Gable, Kansas City, Mo. Described is a valve actuator for pressurized liquid containers having a closure and a spray head for discharge of the container contents in response to depression of said spray head comprising, a resilient mounting member expandable for sleeving over a container closure whereby contraction of said mounting member effects a resilient gripping engagement thereof with said container adjacent said closure, a hand lever pivotally mounted on the mounting member and extending therefrom over the spray head to normally rest thereon whereby downward pressure on said hand lever depresses said spray head for spraying contents of the container, spaced ears on the mounting member arranged whereby spreading said ears expands the mounting member, and means on the hand lever engageable with said spaced ears on the mounting member in response to swinging movement of said hand lever away from said spray head for spreading said spaced members and expanding the mounting member.

No. 2,942,631. Pressurized Containers and Auxiliary Adapter-Actuators Therefor, patented by Harold F. Biewald, 32 Atlantic Avenue, East, Oceanside, N.Y. The invention covers a dispensing attachment for a pressurized, valve-controlled container which dispenses paste through a valve-controlling extension-nipple and in combination, an adapter having a flanged collar for securing said adapter to said container, said collar having an opening therein through which the outlet end of said valve-controlling extrusion-nipple will protrude when said adapter is secured to said container, an actuator, said actuator having a through passage formed therein sized to detachably couple with a tight fit to the protruding end of said extrusion nipple, said actuator being rockably supported upon said adapter so that when said flanged collar is secured to said container the protruding end of said extrusion-nipple will engage in said through passage and couple said valve-controlling extrusion-nipple to said actuator, a duct connecting at one end to said through passage and terminating at its opposite end in an extrusion orifice, said extrusion orifice being positioned adjacent said actuator support to direct extrusion therefrom upon an object which rockably engages said actuator, and said actuator, when thus rockably engaged by an object, rocking relative to said adapter to cause said valve-controlling extrusion-nipple, when coupled to said actuator, to open said valve and thus dispense paste from said container, through said extrusion-nipple, said through passage, said duct, and said extrusion orifice, upon said object.

Pharmaceutical Aerosols

(*From Page* 161)

services of a contract aerosol loader, the pharmaceutical marketer is in a position to change his propellant system, alter the formula, provide new containers, and produce his product on different types of equipment.

In addition, because of his versatility, the contract filler is in a position to aid significantly in the development of new product ideas. We feel that this aspect is most important, and is a point used frequently in selling the services of the contract filler to the pharmaceutical maker.

When a new product is in the development stage it is impossible to foresee what its eventual production requirements will be. If the product sells well, the contract filler is equipped to turn it out in large volume. On the other hand, if the product falls short of expectations, there is no problem of idle equipment for the marketer.

In conclusion we would like to point out that the custom loader is ready and willing to act as an extra arm for the pharmaceutical industry. The filler is saying that he has experience with aerosols, he has the equipment and a limited knowledge of pharmaceuticals, and would like an opportunity to work with the pharmaceutical marketer. If the pharmaceutical maker has a product under consideration, the contract filler stands willing to aid in its development, partially or completely. The custom loader is in a position to turn out products in a manner to which the pharmaceutical manufacturer is accustomed. Such products can be made in accordance with the specifications of the pharmaceutical maker. If the marketer decides to change his package, he does not have to concern himself with production facilities. This is the responsibility of the contract filler.

To repeat the statement made earlier: we—the filler, offer service, quality and versatility, and in return we ask volume from the pharmaceutical industry.

—★—

Merger Yields New Name

Uni-Wax Aerosol & Chemical Corp., New York, recently announced that it has acquired the Woodside Screw Machine Co. of New York. At the same time Uni-Wax changed its name to Woodside Precisionic Corp., a wholly owned subsidiary of Penn-Akron Corp.

Headquarters for the new company, Woodside Precisionic, are at 32-01 57th St., Woodside 77, N. Y.

The contract packager had the answer... *another success story from the ISOTRON file.*

Pressure-Packed Profits "In the Bag"

Milady's bag is an excellent profit target . . . especially to marketers of tiny aerosol cosmetics. If you're interested, consult Strouse, Inc. of Norristown, Pa., where technical know-how and unique, specialized equipment assure you of economical, highest-quality packaging of your product in appealing, purse-size aerosols.

Always an innovator, President Frank Strouse found existing equipment unsuitable for his exacting standards and designed his own. The result: an automated high-speed cold filling line that can load all types of tubes or bottles with exceptionally well finished crimped valves, precision metering of ingredients and every container bath checked. Other Strouse-designed lines in the firm's two plants handle a wide variety of other products. Backing up production are modern research and quality control laboratories.

Contract packagers like Strouse, Inc. can handle your entire aerosol production, from formulation to packaging and shipment to customers. They give expert advice on the proper container, valve and propellent for your product. More and more, packagers specify ISOTRON®...the extra-pure, extra-dry, factory-sealed propellents that power scores of outstanding products.

ISOTRON—*The Key to Modern Living*

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ESTABLISHED 1850

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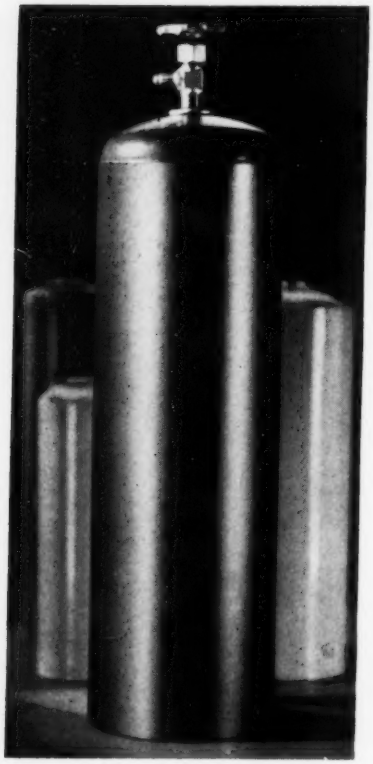
NEW SUPER KING SIZE
DISPOSABLE CONTAINER



Another TMC FIRST helps sell more of your products...

This NEW 10-pound water capacity cylinder now gives you four TMC KING SIZE Disposable Containers to market your products in bigger volume . . . other sizes include 2, 3 and 5-pound water capacities . . .

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FDA May Approve "Freon-C318" Soon

FOOD aerosols, which until now have used only compressed gases as propellants, may soon use a liquefied gas that provides "uniform discharge and in many cases gives a superior product," it was announced last month by E. I. du Pont de Nemours & Co., Wilmington, Del.

This near-term development was foreshadowed by a statement published in the *Federal Register*, August 6, that the Food and Drug Administration has accepted for filing a petition for approval of the use of "Freon-C318" as a propellant in food aerosols.

"Freon - C318" propellant, chemically octafluorocyclobutane, has been developed by Du Pont as an addition to its family of fluorocarbons, which serve as propellants in non-food aerosols. The new product is odorless, tasteless, and has the outstanding chemical stability needed for use with food products, du Pont claims.

After carrying out exhaustive tests which indicated that there were no toxicological problems in the use of "Freon-C318" as a food propellent, Du Pont submitted detailed data to the FDA for review by that agency. Under the Federal Food, Drug, and Cosmetic Act as amended, any food additive must be approved by the FDA before it can be marketed for use in foods.

Acceptance for filing is the first step in the approval procedure which calls for an additional period of three to six months for final determination. Following this, if approval is granted, the FDA will establish a regulation outlining the conditions under which "Freon-C318" may be used as a food propellant.

This approval is expected to open up a broader field of food aerosols which will utilize the inherent advantages of a liquid-compressed gas propellant mixture, du Pont says. Pressure-packaged whipped creams, for example, is said to be dispensed more uniformly when 15 per cent of "Freon-C318" is added to the compressed gas nitrous oxide. This propellant mixture will reportedly dispense whipped cream of better color, higher foam density, and greater stability.

It is expected that "Freon-C318" will be used in products where a foamed or slightly foamed discharge is desired. Potential candidates are whipped butter, cream cheese, and canape spreads, which have not as yet been produced in aerosol form.

In the case of such foods as salad oil, catsup, or barbecue sauce, where liquid discharge of pure product is desired, compressed gas alone may continue to be the logical propellant choice, provided enough gas can safetly be included in the container to expel what the consumer will regard as a reasonably acceptable amount of the product. However, where it will provide the desired foamed discharge pattern, the liquefied propellant is superior to the compressed gas because of its better pressure characteristics and ability to eject more of the food from the container, du Pont states.

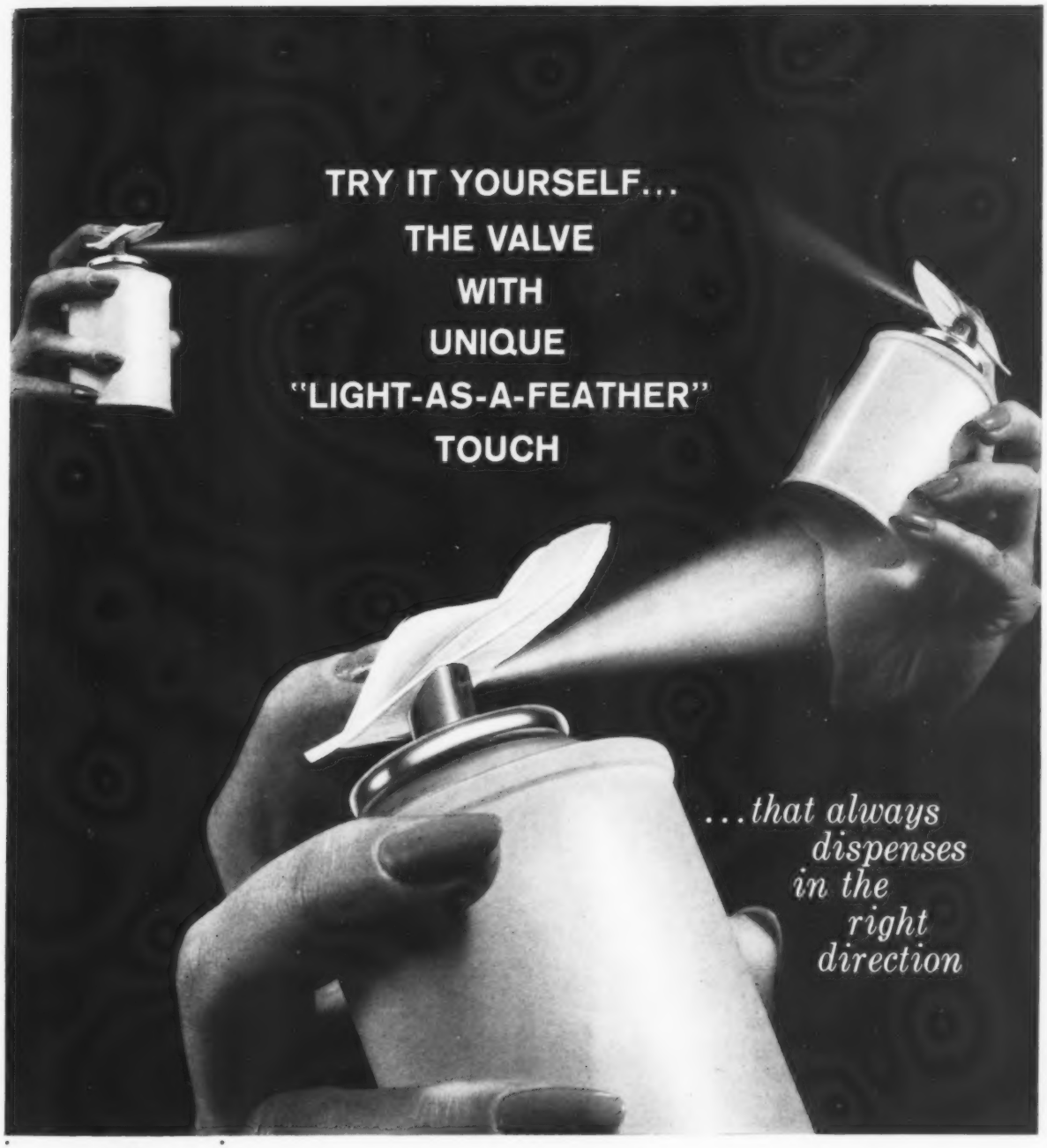
The firm has been making "Freon - C318" octafluorocyclobutane in semicommercial quantities for investigation and experimentation. Many food manufacturers have been working with small samples in anticipation of FDA approval of its use in food.

—★—

Aerosol Package Judging

Judging in the 1960 Aerosol Packaging Contest, to be held under the auspices of the Aerosol Division of the Chemical Specialties Manufacturers Association, will take place at the Chemists Club, New York, on Wednesday, November 2. A panel of seven packaging and merchandising experts to be announced later will do the judging. Awards will be made to the winners in 15 classes and a "best in the show" at the 47th annual meeting of CSMA at the

(*Turn to Page* 214)



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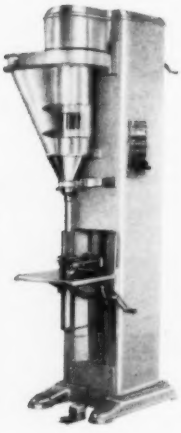
FMC Auger Filler versatility matches Cal Spray product diversity

California Spray Chemical Corporation, well known producer of agricultural and specialty chemicals, has relied on FMC Auger Fillers for many years to accurately package products which have widely different densities and flow characteristics. Eight automatic and semi-automatic fillers in four Cal Spray plants are used to package such chemicals as wettable DDT, rose dust, bug meal, and tomato dust in bags, cartons, boxes, squeeze containers and cans in sizes ranging from 10 ounces to 6 pounds or more.

Ability to successfully handle such a varied "product mix" is the rule, not the exception, for FMC Auger Fillers. The semi-automatic Model EG-1 shown here comes equipped with four filling methods (cam volumetric, packing, gross weight and volumetric combined with vacuum) for both tight and loose fills. Hence, this one unit handles an almost limitless variety of products and containers . . . perfect for short runs. Many other models, semi-automatic and automatic alike, are available to satisfy unusual requirements for accuracy of fill or type of packing in both rigid and flexible containers at speeds up to 140 units per minute.



For the full story of the FMC line of Auger Fillers, write for your copy of Bulletin P-811.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
FMC Packaging Machinery Division
Stokes & Smith Plant
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Production....

EQUIPMENT · MATERIALS · PROCESSING

Perfuming Washing Powders

Soap Plant Observer

New Patents

Book Reviews

Bulletins and Equipment

Although it may not be necessary for the production man to have as complete and up-to-date a laboratory as this one of perfuming materials supplier, Givaudan-Delawanna, there are a great many things about perfuming soap and detergent products the production man should know. Some of these are discussed in article on p. 175.

You can't run a bluff...when you're betting on machinery performance!

Raking in the pot when we're "called" to bet our labeling machine against all comers is real *straight poker.* Only the facts count . . . a machine cannot bluff its competitor.

In several instances we have been in that kind of game . . . our machine *in* the plant . . . competition offering to put theirs in on a trial "winner-take-all" basis. We've yet to lose and we're confident that no other labeling machine, anywhere, will match the all-round production and versatility of the Super C.M. in the foreseeable future.

There are some mighty good reasons for this advantage. Reasons that were designed into the machine before it left the drawing boards. *Over 150 Super C.M.s are now in field operation.*

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WORLD LABELERS

ECONOMIC MACHINERY COMPANY • WORCESTER 3, MASS. / Division of Geo. J. Meyer Manufacturing Company

Perfuming Washing Powders

What the production man in a soap plant should know about perfuming materials.

FRAGRANCE is an important element in the consumer appeal of a product. Since industry has realized this important fact, perfuming of washing powders is receiving increased attention. The soaper must therefore familiarize himself with the range of perfumes available for his purposes. In actual practice, it is the production man who is responsible for the testing, evaluation, and application of fragrance materials. To discharge these responsibilities successfully, he needs a nose trained to recognize odor notes and shades.

To illustrate the extent of the soap production man's concern with fragrance, we will assume that he had been commissioned by management to find and suggest a fragrance suitable for a heavy duty washing powder based on soap.

I. Reconnaissance

To gain a general impression of fragrance trends prevailing in his field, the production man should first obtain and examine samples of the most popular soap powders on the market. Samples of heavy duty synthetic detergent powders may also be consulted. However, problems encountered in perfuming soap powders are not necessarily identical with those encountered in perfuming synthetic detergents. A fragrance product suitable for use with synthetic detergents may be a complete failure with soap.

II. Collect Samples

Preliminary reconnaissance will show that two main fragrance types predominate. At this point the purchasing department should be told to order perfume samples from various suppliers with the following stipulations:

Types: a) Lavender-fougere
b) Floral bouquet of a general character, no individual note predominating.

Requirements: Compatibility with soap and perborate.

Mode of application: Preperfuming of sodium tripolyphosphate which is then added to remaining powder in a drum mixer.

Price: Set practical limits.

Orders based on such details permit suppliers immediately to send pertinent samples without first submitting a preliminary assortment.

Instead of adding the perfumed phosphate in the drum mixer, the production man may decide to incorporate the perfume in the slurry before spraying. If so, the supplier must be informed as to what type of spray system is being used. Note: all perfuming materials can be used in such processes.

Another method of perfuming calls for continuous spraying of fragrance material while the powdered product is travelling past on a conveyor belt. Various spraying devices are available for this purpose. In most instances the perfume needs to be pretreated for smooth processing.

A price limit should be set at this stage so that the supplier does not offer materials which are finally rejected because they are too expensive.

III. Testing of Samples

1. Test strips. Each of a series of perfumer's paper strips is partially soaked with perfume. Each strip must be treated with an equal amount. This test permits evaluation of the following points:

a) Color: Discoloration of paper indicates color of product. Although color is not as important a consideration in perfuming laundry powders as it is in making toilet soaps, a light-colored perfume is desirable even in this application.

b) Odor intensity: Perfumes intended for use in washing powders must have a strong odor, since the fragrance must cover the product odor and survive in the product over a considerable period. A weak fragrance can be intensified by a larger dose of perfume. However, in our field there are usually strict limits on volume imposed by price and processing problems. Thus, the best of perfumes is of no use to the soap and detergent manufacturer if its fragrance is too weak, a point which can be established on the test paper.

c) Character: A fresh, clean odor should be imparted to the clothes by the fragrance incorporated in a laundry product. All sweet, exotic, heavy, or obtrusive odor notes should therefore be

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avoided. The perfume should be of a type designed to please as large a segment of the consuming public as possible. Olfactory screening by use of paper strips should succeed in eliminating all products which do not meet these conditions.

d) Clinging power: The consumer expects the washing compound to exude a pleasant odor. She also demands neutralization of the unpleasant smell of the soil loaded wash liquor at the end of the washing cycle. In addition, she likes the soap or detergent perfume to carry over into the clothes or linen giving them a very light fragrance without actually perfuming them. Clinging power is therefore important and a perfume which does not persist on the test paper after three days should not be considered by the manufacturer of laundry powders.

Dishwashing compounds present a slightly different problem. A strong perfume is needed here also to cover the food odors in the dish water, but the fragrance must not cling to the clean dishes.

e) Homogeneity: Perfume compositions should be homogeneous so as to provide the same odor note from beginning to end. No consideration should be given to samples showing a deterioration of odor characteristics during the blotting paper test.

A perfume should never be selected or rejected hastily. The paper strip test is a useful screening tool for selection of likely candidates from a large number of samples, but it must be run to the end. Furthermore, beware of making excessive demands on your nose, since it becomes blunted very easily and when it is tired it comes up with erroneous answers.

2. Tests of perfumed product: Perfumes which have survived the paper strip test are now subjected to evaluation in the product.

a) Dosage and odor changes: Batches of the powder detergent are now perfumed with the remaining perfumes. Procedure should be as close as possible to actual production methods. In our instance tripolyphosphate is perfumed and then mixed with the remaining powder charge. Starting with a ratio of 1:1000 the perfume addition is increased until desired odor level is reached. Thus future dosage can be fixed and costs estimated.

While the perfume should be plainly noticeable in the finished product, excessive dosage should be avoided. Sensitive olfactory nerves should receive some consideration. When the correct dosage has been established the powder should be subjected to an olfactory test. All perfumes showing deterioration in the product are, of course, eliminated.

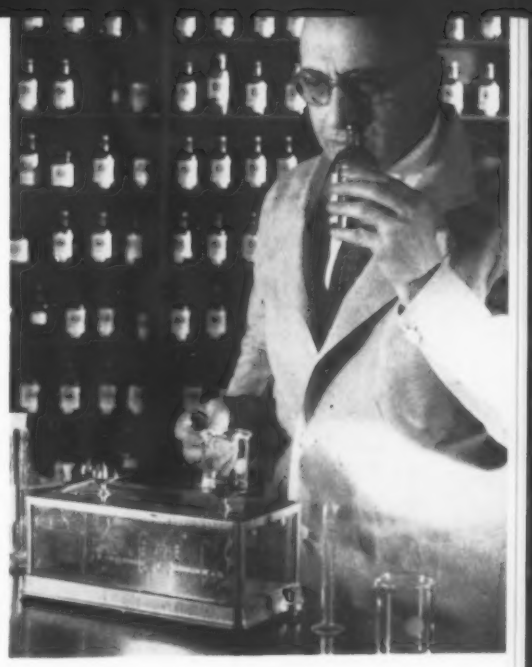
b) Storage test: Test methods must approach actual use conditions as closely as possible. Assuming our powder is intended for marketing as a packaged product, we may place the time lapse between perfuming of the product and use of the powder by the housewife at about six months. Shelf tests should be confined to this period. The powder batches, perfumed with different fragrance materials, are filled in packages and sealed. Our package of unperfumed powder is included as a control.

After six months the packages are opened. The odor of the unperfumed powder will show whether the washing powder itself has survived storage without deterioration. If the unperfumed powder is rancid, the entire test is useless.

The perfumed powders are evaluated for odor quality and strength. Perborate content of the perfumed and unperfumed powders is compared with established perborate compatibility of the perfume.

3. Test in wash liquor: Survivors of the storage test are submitted to the following procedures:

a) Boiling test: In a glass beaker one liter of water containing product in use dilution is heated to 95°C. in 20 minutes;



boiled for three minutes. Fragrance is evaluated at beginning, during heating, and after boiling and should be found agreeable and adequate at all stages.

b) Perborate stability: Stability of the perborate containing solutions is tested to establish whether the perfume influences the rate of dissociation of perborate. The unperfumed powder which has survived the six months storage tests can be used as control.

With this last test the laboratory evaluation is concluded and actual use tests must be made.

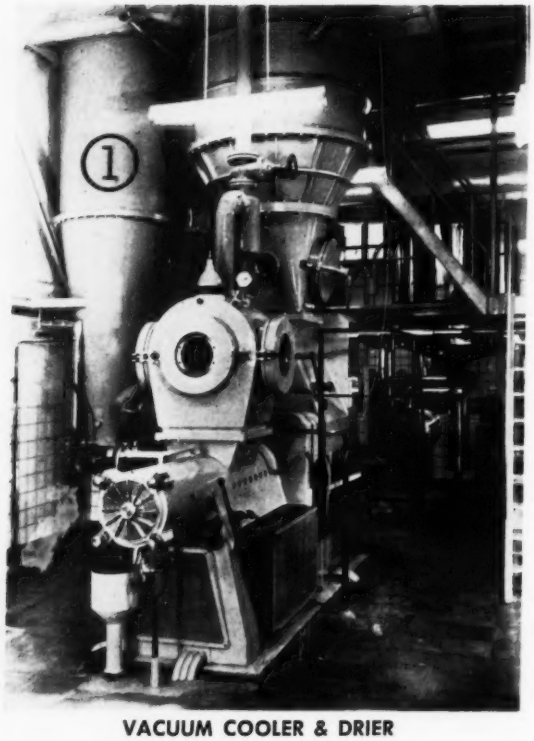
4. Automatic washer: The perfumed products are tested in washing machines of the types most likely to be encountered in the market for which they are intended. The wash should be soiled with soil most common in actual practice. The following requirements should be satisfied:

a) Unpleasant odors and vapors from the soil-carrying liquor must be covered by a pleasant fragrance. Staying power of the perfumes must be sufficient at least to neutralize the bad odors of the waste liquor at the end of the washing cycle or better still, still be pleasantly perceptible at that stage.

b) Washed and dried clothes should exhibit clean fresh odor. If the perfume is sufficiently

(*Turn to Page* 217)

G. MAZZONI, S. P. A.



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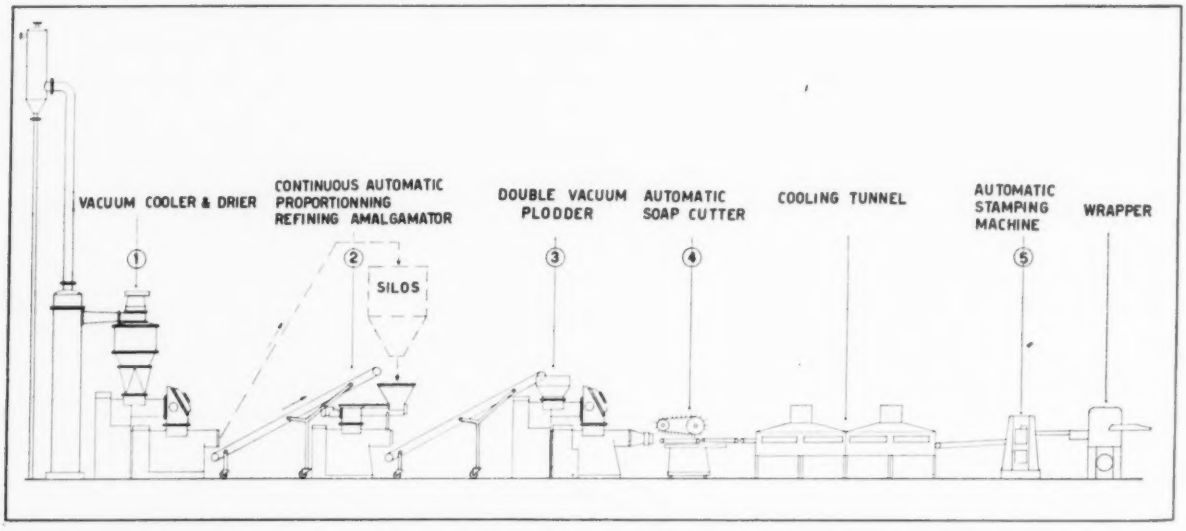

Layout of our continuous toilet soap line. Fully continuous or batch processing possible using chips silos. Our line automatically produces fully refined, first class toilet soap with no roll mills. The individual machines that are employed in the above sketch appear on this and the facing page. A complete line or individual units are available with production capacities of 250 to 1500 Kgs. per hour.

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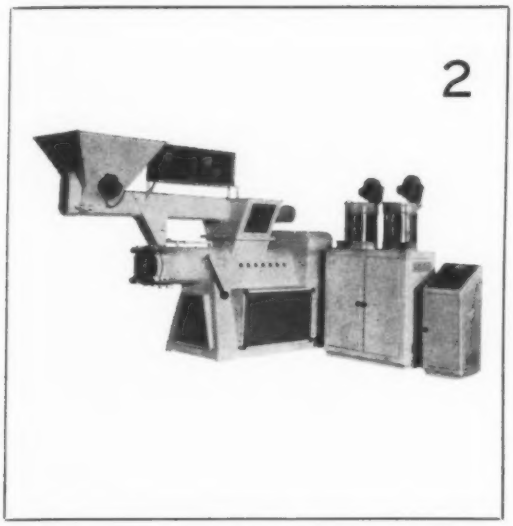

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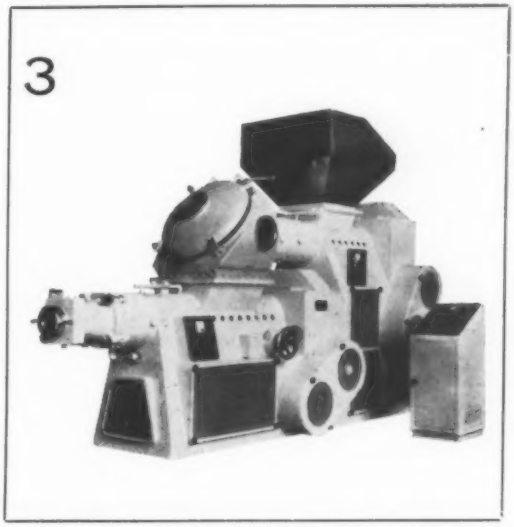
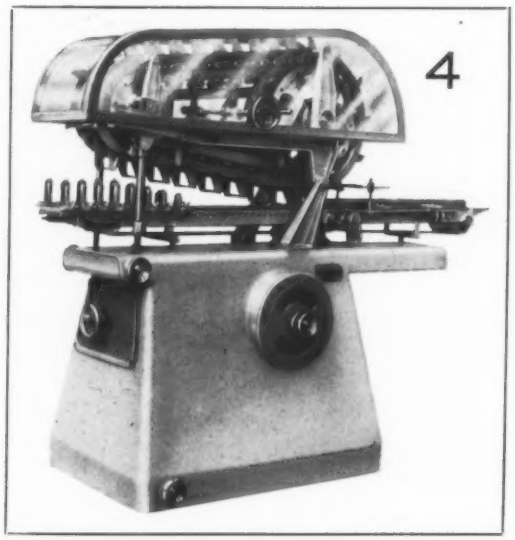


DUPLEX — DOUBLE VACUUM PLODDER
Refiner and Extruder

Units shown on this page are available individually. They appear as numbered in production line diagram on facing page.



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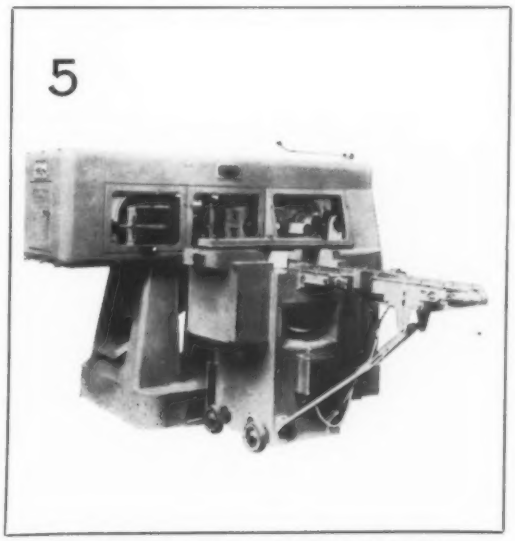
Adjustable cutting length by means of handwheel



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Type "St-S" stamping speed up to 125 per minute.
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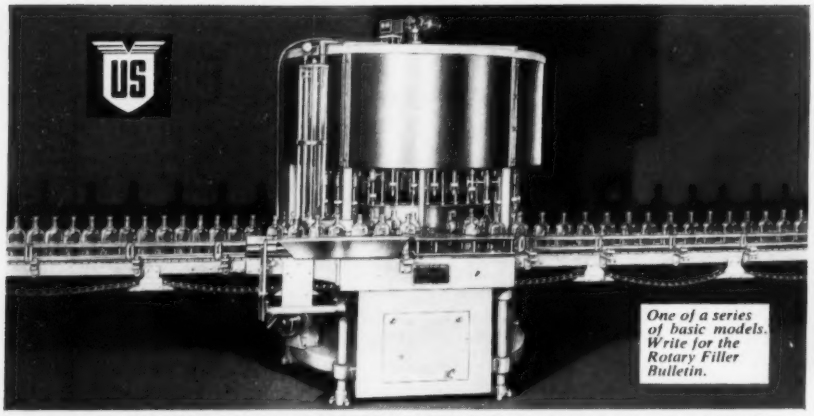
Your inquiry is welcomed! We send, without obligation, data sheets and other literature on this equipment. Let our staff solve your manufacturing problems! We want you to get the most from your raw materials!



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soap plant observer

By Willis J. Beach
Technical Service Department,
Sugar Beet Products Co.

USE of radioisotopes for measuring soil removal is now pretty well established, at least in the fabric and hard surfaces cleaning fields. A question heard more frequently now is: "Shall we set up our own laboratory to do this or have it done on the outside?" The answer, of course, depends on individual circumstances—size of the company, kind and amount of work contemplated, and on whether a continuous project is contemplated.

"Hot labs" are high-cost investments, often exceeding $1,000 per laboratory worker. Prices of fume hoods alone range as high as $3,500. Furnishings vary widely in cost depending on type of radiation to be handled, number of personnel employed, size of the laboratory, need for special ducts, and other installations, and plans for further expansion

On a recent visit of a new "hot lab" installation we were made aware of a few details that should be considered when installation of new radiation research facilities is contemplated.

Low pressure hoods that keep air moving without turbulence from "cool" to "hot" areas minimize contamination and ease the load on the air conditioning system.

Stone surfaces are now finding use in the "hot" labs instead of the more expensive stainless steel that was thought, in the past, to be a "must." Type and level of radiation must be established before a decision is made.

Painted brick or concrete is satisfactory for wall construction. Plaster walls are too absorbent and dusty, and therefore hard to decontaminate. For areas of low-level radiation work, walls painted with gloss or semi-gloss enamel and floors of vinyl or asphalt tile are suitable. For the high-level radiation area, strippable paint for wall and furniture, and special flooring of sheet vinyl are desirable.

Waste containers should be accessible but isolated from the general working area. Located near the waste disposal area should be the decontamination area. It needs a more careful program of inspection than the rest of the laboratory because it will collect contaminated material of different radiation levels.

It is wise to bring in a consultant from one of the major laboratory furniture suppliers when you start designing the layout of your radiation laboratory. They have acquired plenty of experience in rendering technical assistance to the smaller firm.

Comfort in the Laboratory

The subject of air conditioning the laboratory is timely. It is probably hard to justify the cost of air conditioning when there are only a limited number of days with temperatures high enough to cause real discomfort. One wonders about the effect of a prolonged hot spell on the energy and the attitudes of laboratory personnel during the weeks that follow. How much can productive thinking be clouded by irritation and resentment toward management that seems less interested in the working conditions of its research men than of its clerical workers?

Non-technical management sometimes thinks that its scientists get such a big kick out of their work that they are content to put up with poor working conditions—and poor pay, for that matter.

To get the most out of a good man, no matter in which field, give him tangible evidence of your awareness of his worth! Give him enough room to work efficiently and comfortably. Insure that each bench worker has an area distinctly and specifically his own. A feeling of pride and ownership and the knowledge that he is appreciated stimulate his will to accomplish.

A little money should be spent on offices for technical staff personnel. A few hundred dollars to provide a decent desk, a couple of serviceable chairs and a reasonable clean and attractive office, will do much to raise the enthusiasm of men of education and high intelligence—men who have to talk with visiting salesmen and professional associates; men who produce with their brains rather than with their hands.

* * *

Giving a Technical Talk

Writing in the August issue of *Chemical Engineering*, W. A. Sylvester, Technical Publications, Standard Oil Co., Cleveland, tells us to beware of expert speech makers. While we agree that you sometimes wonder what the spell-binder

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has said after he has said it, we don't see eye-to-eye with Sylvester that a technical talk "is not meant to be friendly," and that the "Let 'em yawn" technique is perfectly all right just as long as the paper itself is a good one.

Mr. Sylvester has a point in insisting on good content. After all, most people read and study the paper after publication in a technical or trade magazine. But if you have listened to as many poor deliveries at meetings of technical groups as the author has, you will appreciate a presentation that makes it easy for you to hear and understand. We don't mean that the speaker should indulge in "postures and gestures," but he should try to present his paper "loud and clear."

* * *

On Making Like a Manager

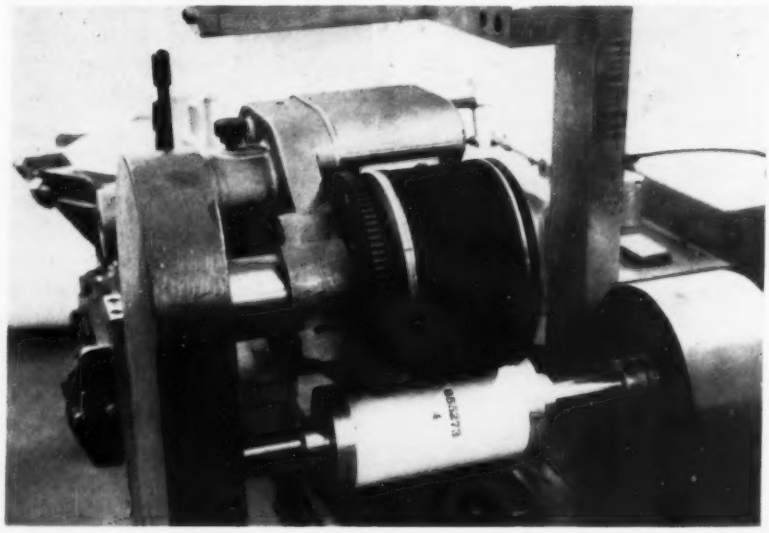
Author Sylvester however goes on to score a few good points of humor in revealing the techniques of successful managerial rhetoric. He claims that those who want to be managers must learn to speak and write like one. "The day of the hard-boiled, cigar-chewing, desk-thumping manager is over," according to this writer. Today's manager, he says, sounds like a combination of practical man of affairs and philosopher. "He sprinkles his speech and reports with words like "over-all planning," "framework," "objectives," or, fancier yet, "economic dynamics."

The would-be manager always adds a quote or two, according to author Sylvester, and gives the impression of wide reading, of having a deep philosophical setting for his most naive suggestions. He may not necessarily be a name dropper but he is a highly skilled quote dropper. What is a good quote for "Managercraftsmanship?" Sylvester says it must be vague enough to offend nobody and re-assuring enough to please everybody. He goes on to say that a good quote is flexible and unhampered by precise meaning. The quote need be no longer than: "the only alternative is government intervention." The threat of government intervention is always useful for any manager, Mr. Sylvester points out.■

Quick-Change Printer

A quick-change circumference machine that permits printing on various cut-off lengths or for specified pusher distances has been developed recently by Bell-Mark Corp., Newark, N. J. The "Bell-Flex" Printer is available in circumferences ranging from 11″ to 24″ and from 2″ to 24″ in face width. Compact, the unit fits into existing packaging equipment. The

New quick-change circumference machine for printing on various cut-off lengths or for specified pusher distances developed by Bell-Mark Corp., Newark, N. J.



unit is driven through its own cylinder shaft extension. Power is taken from the machine or conveyor on which the printer is installed. The unit is "easy" to install, the maker claims. The "Bell-Flex" printer utilizes flexographic printing principles and thus uses a wide range of printing inks, for printing on cellophane, foil, polyethylene, glassine, wax paper and other normally hard to print surfaces.

Application of Bell-Mark printing and coding machinery in a wide range of packaging installations is described in a new, illustrated brochure. Copies may be obtained from Bell-Mark Corp., 18 Ropes Place, Newark 7, N. J.

Designed for installation on packaging machinery conveyor lines, case sealers and other processing equipment, Bell-Mark units include friction driven and electrically operated printers and coders. The new brochure illustrates installations imprinting on various plastic and paper packaging materials.

—★—

New Polymers From Dow

Two new polymers useful as film forming and molecular complexing agents have just been introduced in semi-commercial quantities by Dow Chemical Co., Midland, Mich.

"Devlex" 130 grade of poly-N-vinyl-5-methyl-2-oxazolidinone is water soluble and said to exhibit properties in some respects similar to those of naturally occurring proteins.

"Devlex" A515 is described as a copolymer of poly-N-vinyl-5-methyl-2-oxazolidinone and vinyl acetate, said to form films which are hard, clear and of very low hygroscopicity. Films are, however, removable from their substrates by warm water with or without mild soap or detergent.

Suggested applications include shampoos and hair sprays, floor and leather polishes, and a number of other specialties.

Samples and data sheets available from Dow's Technical Service and Development Dept.

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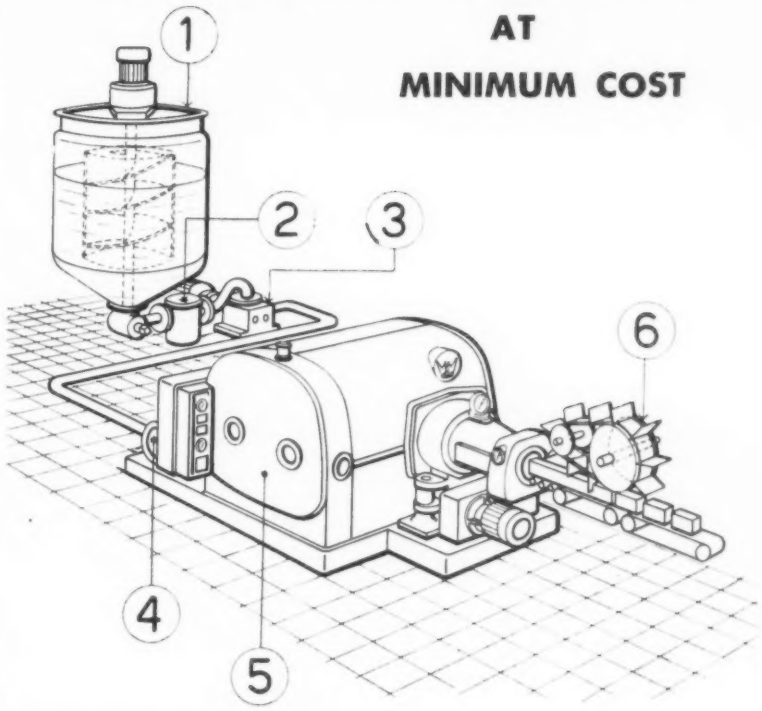

The savings in floor space, labor and production time effected by the SAIX COOLING PLODDER are really impressive. The drawing illustrates the mechanical simplicity of this latest equipment for continuous soap cooling.

(1) The hot liquid soap is drawn from the storage tank through filters (2), (3) and (4), into cooling plodder (5). Here it passes into an annular chamber between a cylinder rotating within a hollow fixed cylinder, both of which are water-cooled. The cooled soap is then compressed by rotating pistons in the collecting chamber. The semi-solid plastic soap then passes to the milling unit and thence to the compression cone, from which it is finally extruded as a continuous bar. It is cut into desired sizes by the continuous automatic cutting machine (6).

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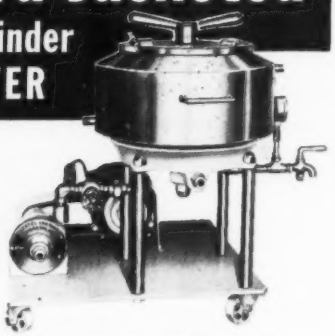

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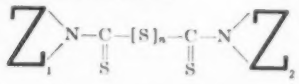
new patents

Listed below are brief abstracts of recently issued patents. Complete copies may be obtained from the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send $1.00 per copy.

No. 2,937,147. Stabilized Germicidal Soaps and Process of Making the Same, patented by Seymore Goldwasser, Teaneck, N. J., assignor to Lever Brothers Co., New York. The invention covers a germicidal detergent composition substantially free from alkali comprising soap, a germicidal amount of a thiuram sulfide having the formula:



where n is an integer from one to six and Z_1 and Z_2 are hydrocarbon radicals having from two to eight carbon atoms and are selected from the group consisting of a single bivalent cycloaliphatic radical and two monovalent aliphatic radicals, and a peroxide characterized by forming hydrogen peroxide in alkaline aqueous solution, said peroxide being in an amount to stabilize the detergent composition against decomposition of thiuram sulfide as evidenced by the development of odor and staining characteristics.

No. 2,937,969. Fly Repellent, patented by Willis N. Bruce, Champaign, Ill., assignor to Lee Ratner, Chicago. A composition for repelling insects is revealed comprising, as a repellent, a symmetrical diester of a 4-carbon atom dicarboxylic acid esterified with alkyl radicals selected from the group consisting of n-propyl and n-butyl and, as a synergist, a heterodicyclic compound selected from the group consisting of 3:4-methylene dioxy-6-propylbenzyl-n-butyl diethyleneglycol ether, n-octyl sulfoxide of isosafrole, and n-2-ethyl hexyl imide of endomethylene tetra-hydrophthalic acid.

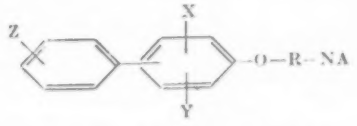
No. 2,936,288. Liquid Detergent Compositions, patented by William B. Coleman, Crete, Ill., assignor to Victor Chemical Works. The patent claims a clear, homogeneous, concentrated aqueous liquid detergent composition comprising 35 to 75 parts by weight water, 5 to 30 parts by weight of a water-soluble inorganic phosphate builder, 5 to 20 parts by weight wetting agent from the group consisting of nonsoap synthetic anionic organic wetting agents and synthetic alkylolamide non-ionic organic wetting agents, and a solubilizing amount of a coupling agent from the group consisting of isoamyl acid orthophosphate and isoamyl acid pyrophosphate, said composition having a pH of from 5 to 10.

No. 2,937,971. Germicide, patented by Leon F. Shackell, 8 Albert Avenue, Morristown, N. J. The invention covers a substantially waterfree, phenolic, germicidal composition that is adapted as such for direct local application, said composition comprising a highly caustic phenol in substantially homogeneous physical admixture with a nitrogenous polar material whose molecular structure is rendered preponderantly anionoid in character by the presence therein of an effective number of electron-donating polar groups; said polar material being further characterized (*a*) by being chemically compatible with the caustic phenol, and (*b*) by being capable of forming a substantially homogeneous physical system with more than its weight of the caustic phenol; the polar material in said physical system—when said system, so formed, is applied to a substantially dry, cutaneous surface—causing the phenol therein to exhibit a delay in the time of onset of its caustic effect of at least 100 percent beyond the time of onset of caustic effect of a control mixture containing the same phenol in the same proportion by weight as in said physical system, but with said polar material being substituted in the control mixture by a substantially non-polar hydrocarbon of the class consisting of cyclohexane, pinene, p-xylene and a mixture of isometric xylenes; said polar material being an acidulated amine; said composition containing the caustic phenol in an effective germicidal concentration; and said acidulated amine being present in the composition in an amount sufficient to reduce the causticity of the phenol without proportionately reducing its germicidal power.

No. 2,938,887. Water Soluble Copolymers, patented by Philip Weiss, Nutley, N. J., assignor to Colgate-Palmolive Co., Jersey City, N. J. A water-soluble copolymer is claimed of (*a*) a styrene compound selected from the group consisting of styrene and styrene bearing inert substituents, any such substituent having at most two carbons, and (*b*) an alpha, beta ethylenically unsaturated aliphatic carboxylic acid ester of monohydric alcohol, said carboxylic acid ester having at most two carboxylic groups, at least 5 mole percent of said alcohol being a terminal monoether of a polyglycol selected from the group consisting of polyoxyalkylene glycol and polyoxyalkylene glycol bearing inert substituents, said terminal monoether group being selected from the class consisting of monoalkyl ether and monoaryl ether groups, and said glycol having at least about 5 alkylene oxy units, said copolymer being substantially free of ionic groups and the carboxy groups of said acid being substantially completely esterified by said alcohol.

No. 2,941,947. Process for the Preparation of Free Flowing Detergent Compositions, patented by Paul J. Schauer, Danvers, Mass., assignor to Monsanto Chemical Co., St. Louis, Mo. In the production of spray-dried detergent compositions comprising an active nonionic organic detergent constituent in the presence of a hydratable alkaline builder component, which spray-dried detergent compositions are substantially free from caking and blocking, the improvement is patented which comprises introducing the hot spray-dried detergent composition directly from the spray tower to a fluidizing tower and suspending said detergent under fluidizing conditions for an average sojourn time of from about 10 minutes to about 40 minutes.

No. 2,935,439. Method of Inhibiting Growth of Fungi, patented by Howard B. Wright, Warren Township, Lake County, and Marjorie B. Moore, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill. This patent teaches a method of combatting the growth of a fungus which comprises applying to a growing fungus a fungicidal amount of a chemical compound selected from the group consisting of ethers, the acid addition salts of said ethers, and the quaternary ammonium salts of said ethers, said ethers having the formula



wherein R is an alkylene group having from 2 to 6 carbon atoms inclusive, NA is from the group consisting of dialkylamino, morpholinyl, pyrrolidinyl, N-methylpiperazinyl and piperidinyl, and X, Y and Z are from the group consisting of hydrogen chlorine and bromine with the further proviso that at least one of X, Y and Z must be selected from the group consisting of chlorine and bromine.

★

Tank Truck Cleaning

A pre-engineered "packaged" cleaning system for milk tank trucks is described in a new illustrated bulletin just published by Klenzade Products, Inc., Beloit, Wis. The installation is said to come complete except for simple connections to plant utilities, occupies an area of five feet by two feet. Cleaning cycle requires 15 minutes.

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products and processes

PVP Laundry Detergent

A built alkylaryl sulfonate formulation said to be especially suitable for use on synthetic fibers contains polyvinylpyrrolidone as a soil redeposition preventive agent. The following formulation is suggested in *PVP Formulary*, recently published by Antara Chemicals, 435 Hudson Street, New York.

	parts by weight
PVP K-15	1
Alkylaryl sulfonate (85% active)	25
Sodium tripolyphosphate	40
Sodium sulfate	28
Sodium metasilicate	6

—★—

Soluble Cholesterol

A new 100 per cent active, water and alcohol soluble form of cholesterol has just been introduced by American Cholesterol Products, Inc., Edison, N. J. Offered under trade name "Solulan C-24," the material is said to be compatible with soap and detergent systems and suitable for incorporation in shampoos and related hair care products. Owing to its ether structure "Solulan C-24" is stable over a wide pH range and compatible with cationics, dyes, thioglycolates, hair rinses, etc., according to American Cholesterol.

A bulletin giving detailed information on the product and its applications is available from the manufacturer.

—★—

Detergent Briquettes

A water dispersible, solid nonionic detergent in briquette form for use in automatic washing machines can be made as follows:

"Igepal" CO-850, nonionic (GAF)	20
Tetrasodium pyrophosphate	80
CMC (low viscosity)	0.5—1
"Blancophor" RG-95, optical brightener (GAF)	0.1
PVP K-90	60
"Elvanol" 71-30, polyvinyl alcohol (du Pont)	10
Glycerine	10
"Antaron" FC-34, amphoteric (GAF)	

Ingredients of Part A are mixed in hot water (50-55°C.) jacketed blender until homogeneous and plastic. Stamp into briquette form with a mold pressure of approximately 3,500 psi. Coat with water soluble film (Part B) by either dipping or spraying. Dry film immediately by a blast of hot air. Each briquette weighing about 85 grams is equivalent to one cup of the usual washing powder. (Formulation suggested by Antara Chemicals, Sales Division of General Aniline & Film Corp., 435 Hudson Street, New York 14.)

Antiseptic Aerosol Foot Preparations

AEROSOL foot preparations contain antiseptics as main active ingredients. These fulfill a twofold purpose: Control of fungi which cause athlete's foot and inhibition of odor causing bacteria. Fungistats and bacteriostats are combined with menthol and other refreshing and soothing ingredients, according to the May 1960 issue of *Schimmel Briefs*, published by Schimmel & Co., Newburgh, N. Y.

Certain fatty acids, including undecylenic, propionic, and their salts are effective fungistats without irritating the skin. Other fungistatic and antibacterial agents suitable for this use are triacetin (glycerine triacetate), a number of quaternary ammonium salts, and various chlorinated compounds such as bithionol, dichlorophene and others.

Vehicles for the active ingredients of an athlete's foot spray must be anhydrous for compatibility with the fluorinated hydrocarbon propellants. They must not leave an oily film on the skin. Anhydrous alcohol, although an excellant vehicle and highly volatile, produces a burning sensation when undiluted. It should be mixed with some bland vehicle, such as one of the glycols.

Propylene glycol is a safe vehicle for topical preparations and a satisfactory solvent for many antiseptics, according to the author. However, its miscibility with fluorinated hydrocarbons is limited. The commonly used mixture of propellants 12 and 11 (50:50) dissolves in propylene only to the extent of 14 per cent by weight, insufficient for a satisfactory spray. Liquid polyethylene glycols are also incompletely miscible with the propellant mixture. Addition of ethyl alcohol improves miscibility of any of these glycols.

Dipropylene glycol and the lower polypropylene glycols are miscible with the 12/12 mixture in all proportions. However, their cutaneous properties are not as well established as those of propylene glycol, according to this report and should be investigated if use in medicated foot sprays is considered.

An experimental aerosol formulation for treatment of athlete's foot developed by General Chemical Division, Allied Chemical Corp., New York, calls for the following components:

	wt. %
Dichlorophene	0.04
Hexachlorophene	0.02
Dipropylene glycol	8.00
Isopropyl myristate	2.00
Menthol	0.04
Propellant 12/11 (50:50)	89.90

(*Turn to Page* 189)

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Cleaning sails...cleaning house...cleaning almost anything—detergents can do it better than anything else. The basic ingredients in many detergents are Enjay Olefins: Tetrapropylene and Tripropylene. Like all Enjay petrochemicals, these Olefins are known throughout industry for their uniform purity and high quality.

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This combination has been tested for stability as an aerosol but not for safety or therapeutic effect.

An aerosol powder formulation based on the same active ingredients incorporates 10 per cent talc (350 mesh) and only 0.5 per cent of each of dipropylene glycol and isopropyl myristate. While talc is a desirable ingredient of foot preparations because it keeps the skin dry, it may clog the aerosol valve, according to this report.

—★—

Four Sides Case Marking

An installation permitting automatic product identification marking on four sides of shipping cases during packaging operation is now available from Adolph Gottscho, Inc., Hillside 5, N. J. The method involves use of a belt conveyor, one or more turners, adjustable side guides, and a set of friction powered "Rolacoder" imprinters.

Five different set-ups are available: One of these provides for imprinting two sides of cases in the sealer and the other two sides upon leaving the case sealer. Another calls for marking all four sides on the conveyor set-up. Variations in arrangement of turners and guides permit delivery of marked cases with either sides or ends of cases leading.

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Armour Aliphatics List

More than 200 fatty acids and fatty nitrogen derivatives are listed in a new catalog just published by Armour Industrial Chemical Co., 110 N. Wacker Drive, Chicago 9.

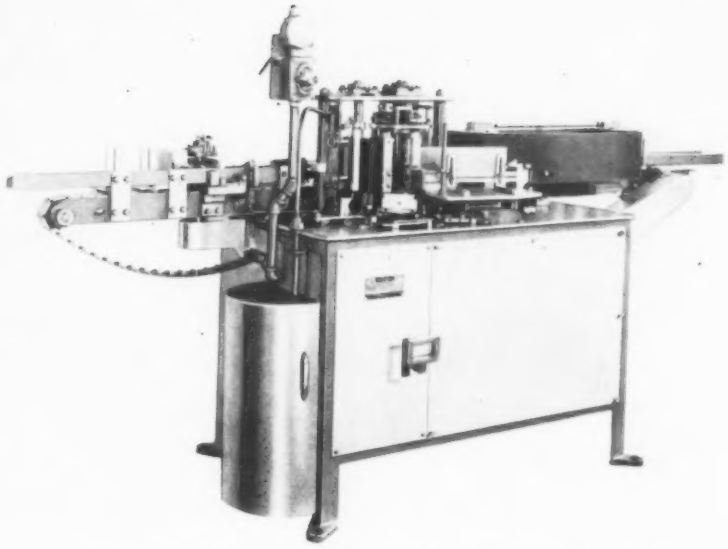
Specifications and typical applications for each group are covered.

—★—

New Labeling Machine

A new automatic straight line and continuous motion labeling machine was recently introduced by MRM Co., New York.

Compact, the "SL-85" labeler can be integrated into conveyor lines for handling glass and metal containers ranging in size from one inch by three-quarter-inch diameter through 14 inch by seven-inch diameter, as well as a variety of shapes. The machine applies 45-85 labels per minute up to six by seven inches in size. A label pickup mechanism carries labels singly from a magazine with a capacity of 3,000 labels.



New continuous automatic straight line labeling unit of MRM Co.

For complete information, write MRM Co., 191 Berry St., Brooklyn, N. Y.

—★—

New Hooker Products List

A new 16-page bulletin describing 94 organic and inorganic chemicals has just become available from Hooker Chemical Corp., P.O. Box 344, Niagara Falls, N. Y. Information covers formula, short description, physical data, shipping information and container description for each of the 88 commercial and six development items.

—★—

Bareco Wax Co. Brochure

Bareco Wax Co., a division of the Petrolite Corp., Tulsa, Okla., last month announced publication of a new comprehensive brochure on microcrystalline waxes in connection with Bareco's 25th anniversary.

The 16-page booklet includes a listing and discussion of the many Bareco waxes which have been developed for, and are used in, the manufacture of emulsion and paste polishes for floors, furniture, and automobile finishes. Specifications and characteristics are included for the various types of waxes: hard, plastic, emulsifiable, and synthetic. The text is supplemented with photographs, photomicrographs, drawings, and charts so that together they explain the advantages of the different waxes as applied products in other fields such as paper laminating and coating, packaging, printing inks, phonograph records, cosmetics, and sealing compounds. The brochure is available by writing to Bareco Wax Co., 917 Enterprise Building, Tulsa, 3, Okla.

—★—

PVP Guide by Antara

A new 22-page "PVP Formulary" became available recently from Antara Chemicals, a sales division of General Aniline & Film Corp., 435 Hudson Street, New York 14. Subtitled "a guide to new and improved products" incorporating polyvinylpyrrolidone, the booklet gives more than 30 formulations for specific products in the fields of soaps, detergents, cosmetics, toiletries, pharmaceuticals, adhesives, and coatings.

A number of aerosol formulations are given including hair sprays, pet shampoos, pharmaceutical products and others.

Give her the detergent she wants . . .

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CARBIDE offers a complete selection of TERGITOL Surfactants, each with distinctive and useful properties. And, a continuing research program in detergent chemistry brings you such new products as—

TERGITOL E-68—a semi-solid nonionic, with high water solubility and good caustic stability. The cloud point of a 0.5 per cent solution of E-68 in distilled water is 68°C. (154.4°F.).

TERGITOL E-35—another caustic-stable nonionic for use with *dry* alkaline compounds. The cloud point of a 0.5 per cent solution is 35°C. (95°F.). E-35 has low foaming and good wetting action and is highly effective for heavy-duty cleansing of many types.

E-35 and E-68 can be effectively combined with other TERGITOL Nonionics to give you a detergent product that *is* one of her regulars. The CARBIDE Technical Representative in your area will gladly discuss your special requirements with you—and he'll show you how combination orders of TERGITOL Nonionics can save you money while allowing you to customize your formula. Give him a call; or write: Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York.

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book reviews

Professional Cleaning & Maintenance Book

"HOW to organize a money saving service business or a department for floor and building cleaning" is the subtitle of a new manual on *Professional Cleaning and Building Maintenance* by Bill Clark. The author is maintenance consultant of the Sanitary Chemicals Co., Johnson City, N. Y. Formerly he was manager of operations and purchasing agent for Clean-It, Inc., Johnson City, and owner of his own floor service firm.

Addressed to maintenance personnel, both operators and supervisors, the book gives guidance on every aspect of organizing, performing and evaluating maintenance work. The advice and the form in which it is presented are outgrowths of courses given by the author for the benefit of operators in the cleaning field. The volume contains three parts: Field of Sanitary Maintenance and Labor; Floor Maintenance Technique; and Building Care Services.

The meat of the book is presented in tabular and list form and should prove of real assistance to those for whom the manual was intended. Objectives of a program for training courses are tabulated. Directions for hiring of suitable personnel are drawn up. A daily work check list and a form for a building and work inspection report are included.

In the chapter on floor care the author classifies floors according to ease of maintenance. In the section on floor maintenance technique he reveals himself as a staunch supporter of floor waxing in general, and of water emulsion floor waxes in particular. In analyzing the correct way to choose a floor cleaner, be it soap or detergent, he says: "The cost of cleaner is not the price of it, but the cost of the operation performed with it." Every phase of floor cleaning and maintenance is covered by minutely detailed work charts and check lists. Use of implements is explained and directions for their handling are very full.

A complete building service work survey with tasks broken down and itemized is the core of the chapter on building care services. In a separate chapter daily work routine of preventive maintenance phases are listed. Time studies are included throughout the book.

Factual information of practical value and common sense advice to all echelons in the maintenance field are abundantly supplied in this manual, said to be the first of its kind. This reader, however, feels that the rather cumbersome and philosophizing approach frequently obscures the excellent information contained in the text.

Professional Cleaning and Building Maintenance, by Bill Clark, published by Exposition Press, Inc., New York, June 1960. Cloth bound, 344 pages, $6.00 per copy from the publisher or from author at RD#1, Box 59, Endicott, N. Y.

★

Wax Encyclopedia

"Analysis of Waxes and Related Products" is the subject to be covered by the second volume of L. Ivanovszky's Wax Encyclopedia. First part of this second volume has just been published. Main aspects of the above title discussed in this first part include: Introduction to Wax Testing; Systematic Classification of all Test Methods; Official Standards;; Prerequisites and Fundamentals of Testing; Examination by Physical Senses; Thermal and Mechanical Properties.

Official standards classified in the book include a list of 800 specifications and test methods set up by the American Society for Testing Materials for waxes, soaps, adhesives, and related materials. Material offered is collated from standards and specifications derived from a number of industrial countries. Test methods are evaluated for their ability to yield informative results.

Ivanovszky's Wax Encyclopedia was conceived as a work in four volumes. The first volume, published in 1954 and of an introductory nature, is entitled "Waxes and Their Most Important Properties." In addition to the first part discussed above, the second volume will consist of a second part dealing with: Physical and Chemical Properties; and General Testing of Waxes; and a third part which will cover Chemical and Physical Test Methods; Performance Tests.

Due to appear later is volume III, entitled "Wax Production." It will be concerned with production, refining, modification, and synthesis of waxes. Volume IV is projected to deal with "Properties and Applications of Waxes."

Wax Encyclopedia (Wachs-Enzyklo paedie) by L. Ivanovszky, volume II, part 1 published June 1960 by H. Zeltkowski K. G., Beethovenstrasse 16, Augsburg, Germany, 4¾ by 6½ inches, pp. 486, 55 illustrations, cloth bound, price DM 33.-(approx. $8.00).

★

Cleaner/Sanitizer Data

A new cleaner/sanitizer trade named "Zeal" is described in an illustrated folder just published by Turco Products, Inc., 21600 South Main Street, Wilmington, Calif.

Claimed to combine detergent, germicidal, sanitizing and deodorizing action, "Zeal" is designed for general purpose hard surface cleaning. The product is said to retain its effectiveness in any water hardness up to 500 ppm and in either hot or cold water. Turco claims economy in use for the compound, since it is marketed as a concentrated solution and applied in fairly high dilution. Said to require no rinsing the cleaner/sanitizer effects economy in labor.

NEW THIRD EDITION

HANDBOOK OF PEST CONTROL

By Arnold Mallis

THIS newest reference book deals primarily with household and industrial pests—, insects, rodents, etc., their life cycles, habits, identification and latest chemicals, methods and techniques for their control. It is the most complete work of its kind offered in a single volume.

This up-to-the-minute book should be in the library of every pest control operator, insecticide manufacturer and marketer, entomologist, chemist and others interested in pest control chemicals.

It is recommended by educators as a text book in various college courses in entomology.

The HANDBOOK OF PEST CONTROL measures six by nine inches, has a sturdy grey cloth binding, gold stamped. It comprises 26 chapters for a total of 1132 pages, printed on glossy, high-finish paper.

TABLE OF CONTENTS

Rats and mice
Silverfish
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Cockroaches
Earwigs
Termites
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Bees and wasps
Stored product pests
Spider or ptinid beetles
Lice
Fleas
Flies and mosquitos
Spiders
Mites and ticks

Miscellaneous household pests and chemicals used in their control

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News...

PEOPLE · PRODUCTS · PLANTS

Detergent/Soap Sales Rise

• • •

Williams Plant Closes

• • •

Wrisley Appoints Fay

• • •

Mera Babbitt Vice-President

In a major shift of its executive personnel, Procter & Gamble Co., Cincinnati, has appointed a new managing director for its British subsidiary and a new vice-president of its toilet goods division. C. M. Fullgraf, shown, currently manager of the toilet goods division becomes managing director of Thomas Hedley & Co., P&G's important subsidiary in England. E. A. Snow, vice-president in charge of advertising since last October, becomes vice president of P & G's toilet goods division.

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Anticipating time . . . boy or girl? One thing's for sure. The child's future will be more comfortable and healthy, thanks to your practical applications for Jefferson Ethanolamines. Surrounding this soon-to-be mother are cosmetics and toilet goods, wool blankets and baby clothing, rubber pants and gloves, and behind scenes . . . sweetened natural gas to cook food and dry clothes.

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JEFFERSON CHEMICALS

Wrisley Co. Appoints Fay

Walter G. Fay was made manager of market research and advertising of Allen B. Wrisley

Walter G. Fay

Co., Chicago, wholly owned subsidiary of Purex Corp., Ltd., South Gate, California., according to a recent announcement by Robert N. Harris, vice-president of marketing.

Mr. Fay had been with Toni Co. in market research for the past ten years.

★

New Glycerine Award

A new award for outstanding work in the practical applications of glycerine and its derivatives will be given for the first time in January, 1961 by the Glycerine Producers' Association, a division of the American Association of Soap & Glycerine Producers, Inc., according to a recent announcement by E. Scott Pattison, manager of the group.

The awards were established by the association in 1952, and are given annually for new and independent research contributing to the knowledge and use of glycerine and its derivatives. Up to this time there had been just one award in the field of basic research. Mr. Pattison explained that establishment of the new award had a twofold purpose: It provides a new approach giving equal emphasis to developments in both basic and applied research, and encourages entries dealing with more practical commercial product development.

★

C-P Engineering Director

Appointment of Lowell A. Ledgett as director of engineering for Colgate-Palmolive Co., New York, was announced last month by Leo A. Scott, vice-president for manufacturing.

Mr. Ledgett succeeds Earl J. Reddert who retired after 35 years service. The new director supervises C-P's engineering activities, including design of new plants and facilities, construction, and start-up operations.

Mr. Ledgett joined the company in 1934 as a plant engineer, became head of engineering design for the Jersey City plant in 1937. He joined the central engineering department in 1940, became a department head in 1943, and in 1945 was named assistant chief engineer, a title changed in 1958 to manager of engineering and construction.

★

OM Doubles Sanitizer Prod.

Output of "HTH," water-sanitizing, dry chlorine chemical manufactured by the chemicals division of Olin Mathieson Chemical Corp., New York, will be doubled by the end of next year, as announced by William H. Sheltmire, manager of bleach and sanitary products sales.

The growing number of home swimming pools is credited with necessitating the expansion. "HTH" contains 70 per cent available chlorine and is sold in both granular and tablet form. Chlorination is simplified, the company claims, because "HTH" can be added manually to water.

Mera Babbitt Vice-Pres.

B. T. Babbitt, Inc., New York, recently announced the election of John T. Mera to the post

John T. Mera

of vice-president of the company. He has been controller since joining the company in 1957, and will continue.

Before joining Babbitt, Mr. Bera was controller of the S. H. Pomeroy Co. for two years. Prior to that he had been with the Melrose Hospital Uniform Co., and the Quaker Maid division of the Great Atlantic & Pacific Tea Co.

★

Tyson Simoniz Ad Director

John Tyson was named last month to the newly created position of advertising director of Simoniz Co., Chicago. He supervises all of Simoniz's advertising activities, coordinating internal functions with the company's agencies, Dancer-Fitzgerald-Sample for consumer products, and Buchen Co. for industrial ones.

Mr. Tyson was with Leo Burnett Co. from 1947-1958 as an account executive and later as manager of the marketing department. Before his current post, he was vice-president and management service director at the McCann-Erickson advertising agency.

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Consumer Acceptance: More consumers buy G-11 – Hexachlorophene – soaps than any other deodorant bar. Hexachlorophene is known to millions of people.

Soap Compatibility and Stability: G-11 is effective in *all* types – bar, powder, and liquid soaps and detergents. It is also non-corrosive, alkali stable, effective at all pH's.

Non-Irritation of the Skin: Established by its use in billions of cakes of soap and millions of units of cosmetic and pharmaceutical products such as lotions, oils, powders and ointments for babies as well as adults.

Quality: All production meets U.S.P. specifications.

Availability: Immediate shipment of truck or carload quantities from stock. Available around the world.

Technical Service: Sindar discovered hexachlorophene, holds the patents, pioneered its use in antiseptic and deodorant soaps, and is ready to assist you with your technical problems and to supply data on its varied applications.

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Borax Transfers Manager

U. S. Borax Research Corp., subsidiary of U. S. Borax & Chemical Corp., New York, recently announced that Richard C. Speak is now manager of the consumer products research department. His transfer augments the company's research in soaps, detergents, and other products containing borax and boron compounds.

Richard C. Speak

Mr. Speak was formerly the manager of U. S. Borax's plant in Burlington, Iowa. He was with the Iowa Soap Co. in Burlington when the company was acquired by U. S. Borax. Before that he had been chief chemist with Day & Zimmerman, Inc.

—★—

Insect Repellent Formulas

Cowles Chemical Co., Cleveland, recently announced that it is offering formulas and procedures for making insect repellent in three popular marketing forms, sprays, stick, and roll-on. The formulas include Cowles' diethyltoluamide, "Detamide 95."

—★—

New Aromatic Research

Jerome G. Kaufman, research director for Fleuroma, Inc., New York manufacturers of perfume and aromatic specialties, recently announced an accelerated research program for the development of aromatic synthetics and the manufacture of natural isolates. Increased space and plant facilities at Fleuroma's new quarters in Long Island City make the program feasible.

—★—

Helene Curtis Changes

Appointment of Edward K. Shukur to the newly created position of director of products management of the products division of Helene Curtis Industries, Inc., Chicago, was announced late in July.

Mr. Shukur held the positions of product manager and product group supervisor at Helene Curtis prior to his present appointment. Formerly he was an account executive at Bates Advertising Agency.

Miss Lynn Boland has been appointed to the newly created position of merchandise manager of the Lentheric Division of Helene Curtis. Miss Boland, in the past, handled all product management activities on the entire line. In her new position, she will have full responsibiilty for the development of all merchandising and marketing plans for Lentheric — coordinating them with the sales and sales promotion departments.

William Klein has been appointed to the newly created position of sales promotion manager for the Lentheric-Kings Men Division. Mr. Klein has been assisting Robert Urban, promotion manager of Helene Curtis in over-all sales promotion work, and during the last year has devoted his efforts almost exclusively to Lentheric and Kings Men.

Edward K. Shukur

Carroll Joins Lever

Albert Carroll was appointed to the newly created post of special products manager of the "Pepsodent" division of Lever Brothers Co., New York, it was announced recently.

Albert Carroll

Mr. Carroll was previously with the international division of Vick Chemical Co. Before that he was a vice-president at Benton & Bowles, Inc., and was associated with N. W. Ayer & Son, Inc., advertising agencies.

—★—

Can. Colgate V-P Retires

Colgate-Palmolive, Ltd., Toronto, recently announced that Frank W. Hill, vice-president of sales, has retired after 33 years service. Mr. Hill continues his association with the firm as a sales consultant.

He joined C-P in 1927 as a retail drug salesman in Vancouver, Canada. In his 33 years with the company Mr. Hill has held several divisional and executive posts in both eastern and western Canada.

—★—

Johnson Ups Pettibone

S. C. Johnson & Son, Inc., Racine, Wis., recently announced appointment of Bradley J. Pettibone as manager of the production department in Racine. Mr. Pettibone assumes the production department duties formerly handled by Edward W. Larsen, manufacturing manager.

Mr. Pettibone has been with

AH! WHAT'S THIS... ANOTHER PROBLEM?

But, then, we're accustomed to problems – particularly customers' perfume problems, – as evidenced by our files of numbered compounds. These are high in the thousands and each represents some customer's problem successfully completed and accordingly numbered and thus identified. Since this system has been in effect we have recorded over thirty thousand compositions. That represents a tremendous *accumulation of experience* . . . enough, no doubt, to justify your assigning us *any fragrance* problem that may be bothering you. Our representative or a member of our perfume staff will be glad to discuss such matters with any authorized representative of your firm. You say the word!

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Johnson since 1947. In his new post he will be responsible for the production and packaging of all Johnson products.

★

Canadian TGA Elects

Gordon C. Savage, executive vice-president of J. B. Williams Co. (Canada) Ltd., has been elected president of the Toilet Goods Manufacturers Association of Canada. Other officers are:

J. M. Shaw of Noxzema Chemical Co. of Canada, first vice-president; K. J. Eccles of Roy C. Lewis, Ltd., second vice-president; F. R. McBrien, Bristol Myers of Canada, Ltd., third vice-president; E. A. Phillips, Perfumeries de Paris, Ltd., honorary treasurer; George M. Thomson, Shulton of Canada, Ltd., honorary secretary.

The board of directors includes:

G. M. Broad, Elizabeth Arden, Ltd.; N. B. MacDonald, Rexall Drug Co.; A. P. Podesta, Harold F. Ritchie & Co.; John Struthers of John Struthers & Co.; John MacDonald of Johnson & Johnson; C. L. Biggio, Avon Products; and G. W. Walker, Nivea Pharmaceuticals, Ltd.

John J. Thompson, vice-president of Dodge & Olcott of Canada Ltd., was elected as associate director.

★

Polyvinyl Names Sachs

Max Sachs was recently appointed senior project engineer for Polyvinyl Chemicals, Inc., Peabody, Mass. In his new post he directs the firm's engineering program to meet domestic and foreign needs.

Mr. Sachs was formerly process engineer with Scientific Design Co. He graduated from Purdue University with a B.S. degree in chemical engineering, and has done postgraduate work at MIT.

Max Sachs

Schwarth in Shulton Post

Appointment of John A. Schwarth as sales promotion manager for the fine chemicals division

John A. Schwarth

of Shulton, Inc., Clifton, N. J., was announced recently.

Before joining Shulton, Mr. Schwarth was consumer merchandising and marketing specialist for United States Rubber Co. Prior to that he was national sales promotion manager for Schenley Distillers Corp. His headquarters will be at the Shulton plant and offices in Clifton.

★

R & H Research Center

A research center will be built by Rohm & Haas Co., Philadelphia manufacturers of surface active agents, pesticides, plastics, resins, and other chemical specialties, on a 140-acre tract outside Philadelphia.

Growth of R & H's research program necessitated the additional facilities. A need best met, the company decided, by a research center removed from its manufacturing operations.

★

Glidden Appoints McAdam

Appointment of T. F. McAdam, Inc., Boonton, N. J., as distributor of tall oil products for the organic chemical department of the chemical division of Glidden Co., Cleveland, was announced recently. McAdam is handling distribution of Glidden's tall oil derivatives in the New York and New Jersey areas. Bulk storage facilities will be installed to handle distilled tall oil and tall oil fatty acids.

Thomas F. McAdam is president of the organization bearing his name. He is known for an advisory letter he sends to accounts in the linseed, soya, safflower, fish, tung, oiticica and coconut oil fields.

Fred A. Kaempffe is sales manager for the McAdam organization, which is located at 103 Cornelia St., Boonton.

★

Mennen Research Chemist

The Mennen Co., Morristown, N. J., recenty announced that Nicholas F. Scodari is now senior research chemist. Mr. Scodari was formerly with Block Drug Co., Jersey City, N. J., and before that with Carroll, Dunham, Smith, New Brunswick, N. J.

★

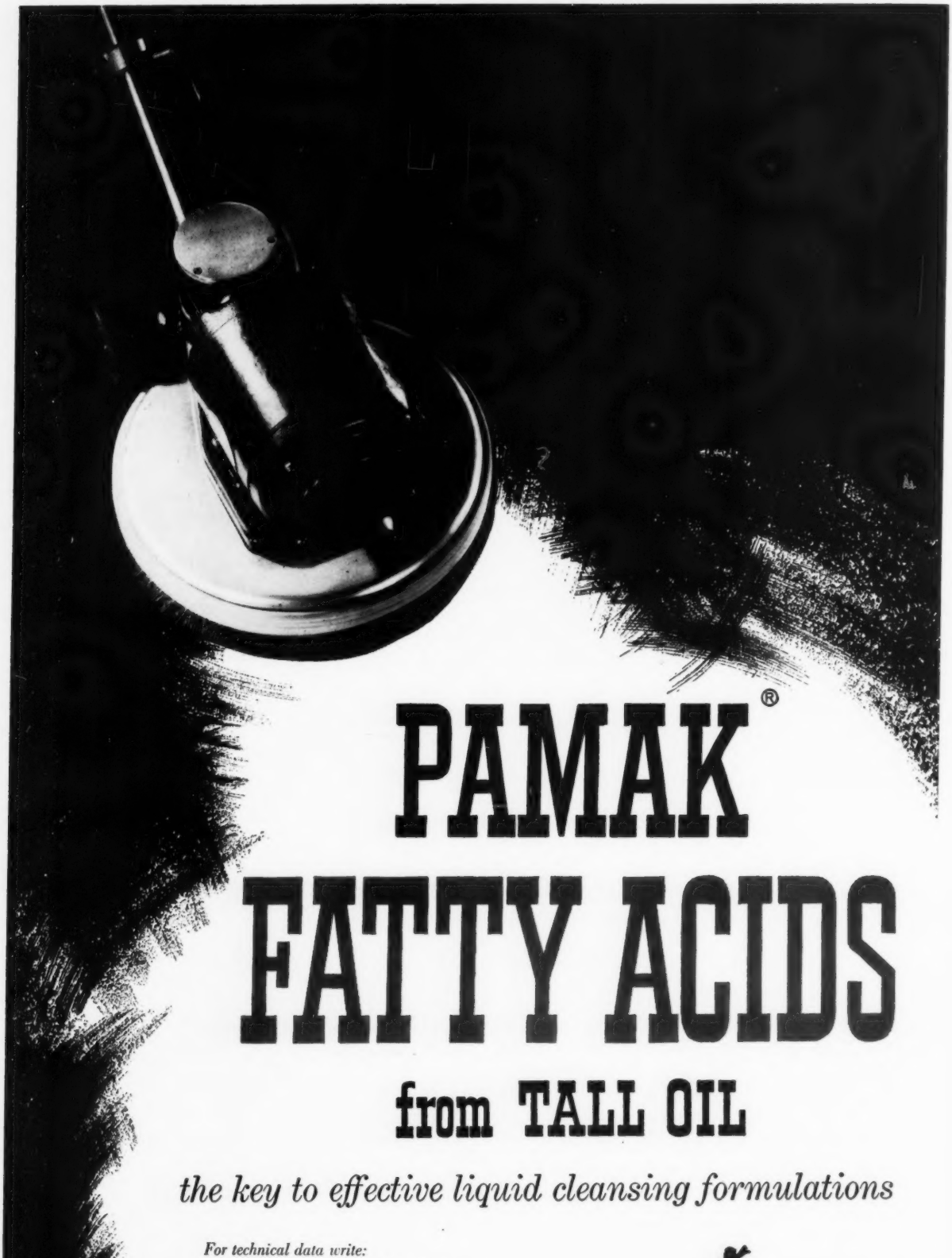
Everson CMRA President

J. William Everson, assistant manager of market research for Dow Chemical Co., was elected president of the Chemical Market Research Association for the ensuing year.

Other officers elected were: F. Scott Godron of Victor Chemical Works, president-elect; Ray Harrison, Jr., of Tidewater Oil Co., treasurer; and Kevin Bradley of White, Weld Co., secretary.

James E. Sayre of Allied Chemical Corp., New York, Foster C. Garrison of Columbia Southern Chemical Corp., and Alvan H. Tenney of Union Carbide Corp. New York, were named directors.

J. William Everson



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PTGO-1

Famed J. B. Williams Soap Plant Closed

THE Glastonbury, Conn., plant of the J. B. Williams Co. was closed July 29 after 120 years of continuous operation, one of the oldest soap making operations in the same spot in the history of the industry. The Williams company was purchased by Pharmaceuticals, Inc. in 1957. Operations of the Glastonbury plant are being consolidated at the Cranford, N.J. plant of the company.

A new firm, Glastonbury Toiletries, Inc. will begin operations on October 1 in part of the old Williams plant manufacturing shave preparations, suntan products, and other toilet articles on contract for the Williams company. Sixteen former employes of Williams will be employed by the new firm.

Soap making operations at the Williams plant were terminated by Robert J. McKeown, soap making superintendent and oldest employe in point of service with the company. Mr. McKeown was with Williams for 45 years, starting as a 15 year old office boy on October 17, 1915, working under the late P. K. Williams and later under Everett B. Hurlburt. He became head of the soap department in 1935 upon the retirement of J. H. Dennen and has continued in that position since that time. Although Mr. McKeown is severing his connection with Williams, he states that he does not plan to retire yet. He feels that "soap is in my blood" and that he will always remain active in some capacity in soap manufacture.

When Mr. McKeown went to work for Williams in 1915, they manufactured 40 varieties of toilet soap and 10 different toilet waters as well as powders, dentifrices and the famed Williams shaving soap. In addition, each year the company produced a half-million pounds of special textile soap for the famous Cheney Silk Mills in Manchester.

In addition to Mr. McKeown, others who have worked at the Williams Glastonbury plant for 40 years or more are Earl Little, head of the perfume department, Louis Coggiola, head of the shipping department, Anthony Valdate, head of the box department, and also Joseph Valdate, John Cinciva and Joseph Kowles.

—★—

Toilet Goods Sales Up

The Toilet Goods Association, Inc., New York, recently estimated the total retail business in perfumes, cosmetics, and other toilet preparations—excluding toilet soaps – to be $1,662,200,000, which represents an increase of nine per cent over last year.

A sharp increase in the market for aerosol products is accounted the main reason for a nearly five per cent increase in shaving cream sales. The over-all increase in sales was generally distributed among all types of toilet goods.

—★—

Aids Freedom Campaign

Henry M. Schachte, executive vice-president of Lever Brothers Co., New York, and a director of the Advertising Council, will serve as volunteer coordinator of the Crusade for Freedom campaign, as announced by the Council last month in New York.

The campaign is designed to encourage United States citizens to donate "truth dollars" to Radio Free Europe's vast and effective broadcasting facilities to communist satellite countries.

Henry M. Schachte

—★—

Stanley Ups Two Lawyers

The appointments of Stephen C. Revilee, Jr., as general counsel and Joseph J. Geehern as tax counsel of Stanley Home Products, Inc., were recently announced by Foster E. Goodrich, newly elected president.

With Stanley since 1954, Mr. Reville continues as assistant clerk of the company and in a corporate secretarial capacity for several subsidiaries. Mr. Geehern has been with Stanley since 1959 as associate counsel.

—★—

Food Additives Amendment

Sonneborn Chemical and Refining Corp., New York, recently announced availability of a bulletin, "Current Topics No. 144," which discusses the effect of the Food Additives Amendment to the Food, Drug, and Cosmetic Act on the uses of white mineral oils and petrolatums.

Copies of the bulletin can be had from Sonneborn at 300 Park Ave. S., New York 10, N. Y.

—★—

Breck JA Co. Award

All Purpose Cleaner Co., a model corporation set up and operated by Springfield, Mass. high school students under the sponsorship of John H. Breck, Inc., Springfield, recently was named regional "Top Achievement Company- of the Year." The company was selected first out of 650 comparable student corporations in the northeast for its success in making and marketing an all-purpose cleaner, "Du-All."

The company is just one of 4,000 industry-sponsored units set up each year under the national Junior Achievement movement designed to help young people reach an understanding of the American economic system. This is the fifth year that Breck has participated in the program.

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SELF STABILIZING SUDS

Stronger bubbles are longer lasting bubbles, and Pilot HD-90 gives thicker wall bubbles. To formulators this means *less foam stabilizer* needed to do the job, and a significant product-cost-saving.

Pilot builds-in the high sudsing self stabilizing character with the singular "cold processing" technique—eliminated are undesirable side reactions, and rearrangement of molecular structure. Thus, dry flowing, dust-free HD-90 is *colorless and odorless.* You'll save, on dyeing and perfuming.

Because of its processing, HD-90 is purer: 90% minimum active, Akyl Aryl Sulfonate, which does a kind of cleaning on many hard surfaces that no other material can do at any concentration! That's *maximum quality level!*

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Geigy Appoints Two

Geigy Industrial Chemicals, division of Geigy Chemical Corp., Ardsley, N. Y., recently appointed John J. Paredes mid-west regional sales manager and Richard J. Michelini sales representative.

John J. Paredes

Richard Michelini

Mr. Paredes joined Geigy in 1959. Before that he was with Monsanto Chemical Co., St. Louis, as sales supervisor of the organic chemical division's special chemicals department and a member of the advertising and promotion staff. Before his current appointment he was sales representative.

Mr. Michelini was formerly with Armour Industrial Chemical Co. in applications research and on the sales promotion staff. After that he was field representative with Virginia Smelting Co.

New Chemetron Unit

The chemical products division of Chemetron Corp., Newport, Tenn., recently announced that a new unit was placed in operation manufacturing sodium xylene sulfonate and sodium toluene sulfonate, detergent intermediaries. Both products are marketed as 40 per cent solutions under the tradename "Crestwood Chemicals."

Philip J. LoBue Co., 277 Park Ave., New York, is the sales agent.

—★—

AHP Promotes Two

The Boyle-Midway division of American Home Products Corp., New York, appointed Melvin Birnbaum vice-president of merchandizing and Jack Bishop vice-president of new product development, it was recently announced. Mr. Birnbaum directs the marketing activities of brand managers, and the management of all brands. Mr. Bishop is responsible for all test products in addition to handling "Aerowax."

The new merchandising vice-president joined AHP in 1959 as assistant to the president. Before that he was with Knomark, Inc., Brooklyn, N. Y., in various capacities, ranging from advertising manager to executive vice-president. In 1959 Mr. Bishop came from Young & Rubicam, Inc., assuming the post of brand manager of "Aerowax" and "Sani-Flush." Before that he was assistant general sales manager for Grocery Store Products Co., West Chester, Pa.

—★—

Stauffer Advances Taylor

Wyman L. Taylor is now assistant vice-president of sales for the industrial chemicals division of Stauffer Chemical Co., New York, according to a recent announcement.

Mr. Taylor was formerly western sales manager of the industrial chemicals division in San Francisco. He is a graduate chemical engineer, and joined Stauffer in 1946.

Surfactants Output Up

U. S. production and sales of surface active agents was 10.2 per cent larger in 1959 than in 1958, according to the preliminary report published last month by the U. S. Tariff Commission.

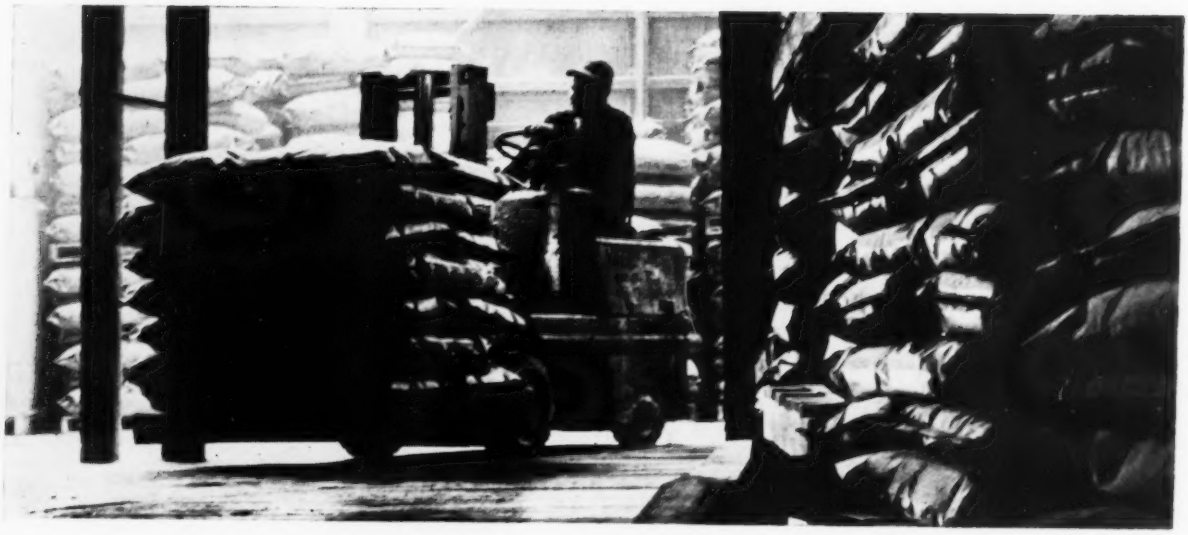
Total production of surface active agents in 1959 rose to 1,494 million pounds from 1,355 million pounds in 1958. Sales in 1959 amounted to 1,362 million pounds, valued at $268,000,000, compared with 1,203 million pounds, valued at $235,000,000 in 1958. All statistics in the report are in terms of 100 per cent active ingredients.

About 71 per cent of the total 1959 production of surface active agents was accounted for by anionic materials. Production of anionics was reported at 1,060 million pounds, sales at 1,016 million pounds valued at $165,000,000. Nonionic materials were produced at the rate of 399 million pounds with sales amounting to 313 million pounds valued at $86,000,000. Combined output in 1959 of amphoteric and cationic surface active agents was 35 million pounds; combined sales of these materials amounted to 33 million pounds valued at $17,000,000.

Production of cyclic surface active agents in 1959 totaled 936 million pounds—10.6 per cent more than the 846 million pounds reported for 1958. Sales of cyclic surface active agents amounted to 895 million pounds, valued at $139,000,000, compared with 765 million pounds valued at $125,000,000 in 1958. Dodecylbenzene sulfonic acid type of compounds were the most important products in the cyclic class.

A 9.6 per cent increase was reported in the output of acyclic surface active agents, which totaled 558 million pounds in 1959 compared with 509 million pounds in 1958. Sulfated and sulfonated acyclic compounds accounted for a little over half of this output with alcohols and esters being the most important individual products. Sales of acrylic surface active agents in 1959 amounted to 467 million

Hooker...prime source for better phosphates



Hooker, with plants at three locations, can provide ample supplies of phosphates. These products are of high purity and are available in both bulk and in bags. Typical of Hooker quality is our sodium tripolyphosphate, 98% pure—highest in the industry.

As a prime producer of sodium tripolyphosphate, tetrasodium pyrophosphate, trisodium phosphate and tetrapotassium pyrophosphate, Hooker is in a unique position to meet the needs of soap and detergent manufacturers anywhere in the country.

ADVANTAGES OF HOOKER PHOSPHATE GRANULES
No matter how you compound your own product, you'll find it advantageous to use Hooker phosphates. If your product is prepared as a slurry and then spray-dried in your own tower, you get the advantage of faster dissolving without lengthy agitation.

CLEARER SOLUTIONS. Where color is important, Hooker's virtually haze-free phosphates meet exacting requirements.

DUST FREE. Hooker's sodium tripolyphosphate and tetrasodium pyrophosphate are freer from dust because they are spray-dried into hollow, ball-like particles. There are no sharp edges to break or crumble. Your own workmen and those of your customers will be spared the annoyance of phosphate dust. Also available in regular density, as are sodium hexametaphosphate and trisodium phosphate.

NO PREMIUM PRICE FOR PREMIUM QUALITY
To check on our premium quality, ask for samples. To check our prices, ask for price sheets.

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HOOKER CHEMICALS PLASTICS

pounds valued at $129,000,000.

Preliminary statistics on production and sales of surface active agents are said to be 95 per cent complete. Copies of the report are available from U. S. Tariff Commission, Washington 25, D. C.

—★—

F. D. Snell Booklet

Foster D. Snell Inc., New York chemical consultants, recently made available a new booklet, "Modern Chemical Specialties," which outlines the scope of the chemical specialties field, and details several Snell developments in the field.

Copies are available by writing Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

—★—

Arizona Sales Manager

H. W. Bajak was recently appointed general sales manager of Arizona Chemical Co., New York marketers of tall oil and terpene products. He is responsible for all domestic sales activities of the company. Formerly he was assistant to the president.

At the same time it was announced that H. C. Zeni is now manager of national and distributor accounts. Responsible for the sales promotion to Arizona's larger industrial accounts, he also supervises and coordinates distributor sales.

Arizona is jointly owned by American Cyanamid Co. and International Paper Co.

H. W. Bajak

Procter & Gamble Managerial Changes

A NEW managing director for its British subsidiary and a new vice-president of the toilet goods division were named by Procter & Gamble Co., Cincinnati, in a series of managerial changes to be effective October 1. Announcement of the executive realignment was made late last month by Howard Morgens, P & G president.

E. A. Snow

C. M. Fullgraf, currently manager of the toilet goods division, will be managing director of Thomas Hedley & Co. in England. E. A. Snow, vice president—advertising since Oct. 1959, will become vice president — toilet goods division.

In his new position with Thomas Hedley Mr. Fullgraf will succeed K. W. Streith, who will undertake a special assignment for development of P & G's business in Sweden, Norway, Denmark, Portugal, and Austria.

E. G. Harness, manager of the soap products promotion division, will become manager of the advertising department of the soap products division.

The present manager of the advertising production division, A. N. Halverstadt, will hold the position of general advertising manager. In this post he will be responsible in a staff capacity for guiding and correlating advertising policies, advertising practices and advertising personnel development for all P & G operating divisions. In addition Mr. Halverstadt's responsibilities will include a number of central staff departments in merchandising and advertising production activities.

At the same time Mr. Morgens announced appointment of M. L. Looby as manager of retail sales in the Charmin Distributing Co., P & G subsidiary for sales of paper products. Mr. Looby, whose new appointment became effective Sept. 1, was previously manager of the southern region of the case food sales department.

—★—

Hercules Advances Borglin

Hercules Powder Co., Wilmington, Del., announced last month advancement of Joseph N. Borglin to manager of customer service, pine chemicals division, Naval Stores Department. He is concerned with established products of the pine chemicals division and assists several department district offices in providing technical help to customers.

Mr. Borglin has been with Hercules since 1926 in the naval stores field. He has held the posts of chemist, chief chemist, sales supervisor, and has been engaged in technical service and development work.

Joseph N. Borglin

WAX FACTS

NEWS OF INTEREST TO WAX USERS—
DEVELOPMENTS IN THE FIELD OF SYNTHETICS

New! The Super Hard Wax for All Polishes:

Special Issue—S-9-60

J-324V

The longest — lasting, high-gloss protection for all surfaces is provided by carefully formulated hard-wax bases. Polymers and resins alone cannot begin to match the true buffability features of a wax. Institutional users of floor polish have long recognized that re-buffable protection is a "must", along with eye-appealing gloss.

To produce the best in buffable floor polishes the choice of the new DUROXON J-324V is a "natural." This extra hard, purely synthetic wax produces very durable films which dry to a high gloss and do not discolor even the lightest floors. It is produced in the world's largest, fully intergrated Fischer-Tropsch plant under conditions of perfect quality control.

SPECIFICATIONS OF DUROXON J-324-V

Penetration (100g., 5 sec., 77°F)	0-1
Color	less than 3 NPA
Solidification Point °C (Rotating Therm.)	91-93
Melting Point °C	abt. 105
Acid Value	5-10
Saponification Value	25-35

NEW FLOOR POLISH IDEA MADE PRACTICAL WITH J-324V

Many times in the past we have been asked by floor-polish manufacturers: Can you suggest a good starting formula for a bright-drying polish of light color which can be easily re-buffed and which protects the floor with a true wax, non-resinous film. The film should be of similar character as that of a paste-wax.

The problem is not as simple as it sounds at first. There are many re-buffable self-polishing products on the market, but most of them rely on up to 20% or even more of alkali-soluble resin for leveling and initial gloss. To formulate a high-gloss, well-leveling floor-wax containing little or no resinous components presented a challenge for the Dura Technical Service Laboratory.

The resulting formula, PWM 6102T, produces an almost pure wax film surpassing other bright drying products in "self-healing" and long-wearing properties. It is non-discoloring to light floors, recoatable and water resistant. A small sample of floor-wax PWM 6102T will be submitted to you upon request together with a bulletin describing its low-cost, simple preparation.

Discover how your polish emulsions and pastes benefit from DUROXON J-324V! If you are now a user of the versatile, regular J-324, try the new J-324V for its added hardness, durability and odor free characteristics!

Write or wire for free sample and technical bulletin!

To: Dura Commodities Corporation, 20 Vesey Street, New York 7, N. Y.

Please send me the following:

☐ Sample of DUROXON J-324V ☐ Buffable Liquid Wax Formula PWM-6102T, with sample

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Company .....

Street .....

City ..... Zone ..... State .....

DURA COMMODITIES CORPORATION
20 VESEY STREET
NEW YORK 7, N. Y.

Soap/Detergent Market Keeps on Growing

THE combined detergent and soap market showed a 4.5 per cent growth in the first half of this year over the corresponding period of 1959. Sales in the six months period rose to a record high of 2,155,550,000 pounds, valued at $549,942,000, the latest quarterly sales census of the Association of American Soap & Glycerine Producers shows. Soap and detergent sales of Soap Assn. members in the first half of 1959 amounted to 2,062,686,000 pounds and $526,142,000.

Soap sales edged upward by one tenth of a per cent in tonnage and 1.3 per cent in dollar value, continuing a trend first observed in the first quarter of this year.

Sales of synthetic detergents amounted to 1,633,002,000 pounds, valued at $394,798,000, in the first half of 1960, representing an increase of six per cent in tonnage and 5.8 per cent in dollar value over the first half of 1959. Sales reported for the 1959 period were 1,540,602,000 pounds valued at $372,996,000.

Growth of the liquid detergents market continues, but not at the steep rate previously observed. Liquid synthetic detergent sales amounted to 314,608,000 pounds and $106,935,000, up 17.6 per cent in volume and 9.7 per cent in value over the corresponding period of last year. Of the 314.6 million pounds of liquid detergents sold about 287.4 million were marketed in packaged form.

Solid synthetic detergents sales amounted to 1,318,394,000 pounds, having a dollar value of $287,863,000, a rise of 3.6 per cent in volume and 4.5 per cent in value. Here, also, the packaged product predominates, accounting for 1,253,099,000 pounds of the above total.

Total soap sales amounted to 522,548,000 pounds valued at $155,144,000, compared with 522,084,000 pounds and $153,146,000 in the first sixe months of 1959. Sales of liquid soap rose 10.2 per cent to 15,384,000 pounds. Packaged liquid soap shampoos lost 13 per cent of their market.

The market for solid soaps amounted to 507,164,000 pounds and $152,119,000, up 1.1 per cent in value but down 0.2 per cent in tonnage from the figure reported for the six months of 1959. Bar toilet soaps accounted for 276,636,000 pounds valued at $100,197,000, up 3.6 per cent in volume and 3.9 per cent in value. A 21 per cent increase in volume was reported for shaving cream which includes aerosols, whereas shaving soap shows a 9.8 per cent loss in sales.

The market for scouring cleansers showed a decline, with a 3.2 per cent decline in tonnage and 7.1 per cent loss in dollar value. Sales amounted to 185,504,000 pounds and $24,845,000.

★

Daggett of Lueders Dies

Ross LeB. Daggett, vice-president of George Lueders & Co., New York essential oil house, suffered a fatal heart attack on July 31. He was 58 years old. Mr. Daggett joined Lueders in 1930, became a director in 1936. In 1939 he was elected a vice president.

Detergent and Soap Sales — First Half of 1960 and 1959

	Thousands of pounds		Thousands of dollars	
	1960	1959	1960	1959
Detergents, solid	1,318,394	1,273,122	287,863	275,529
Detergents, liquid	314.608	267,480	106,935	97,467
Total	1,633,002	1,540,602	394,798	372,996
Detergents, solid, other than shampoo, pkgd.	1,253,099	1,206,985	275,731	262,910
Detergents, solid, other than shampoo, bulk	59,857	60,334	8,744	8,921
Detergents, liquid, other than shampoo, pkgd.	35,929*	29,946*	96,291	85,469
Detergents, liquid, other than shampoo, bulk	2,644*	2,623*	3,086	3,117
Detergent shampoos, liquid	6,024	6,928	7,558	8,881
Detergent shampoos, solid	5,438	5,803	3,388	3,698
Soaps, other than liquid	507,164	508,124	152,119	150,430
Liquid soaps	15,384	13,960	3,025	2,716
Total	522,548	522,084	155,144	153,146
Bar toilet soaps**	276,636	267,039	100,197	96,471
Laundry bars, white	51,047	52,235	10,791	11,547
Laundry bars, yellow & other than white	27,282	26,819	2,366	2,617
Soap chips & flakes, pkgd.	12,232	13,689	4,089	4,725
Soap chips & flakes, bulk	39,143	38,608	3,776	4,201
Soap, granulated, powdered, sprayed, pkgd.***	52,852	57,164	15,902	17,599
Soap, granulated, powdered, sprayed, bulk***	26,890	31,827	3,009	3,647
Hand pastes & powders, incl. waterless hand cleaners	4,685	4,422	1,013	762
Paste & jelly, potash and other	4,699	6,281	606	888
Shaving soaps (stick, powder, cake)	985	1,092	636	684
Shaving cream (tube, jar, aerosols, soapless)	10,197	8,430	9,649	7,178
Soap shampoos, liquid, pkgd.	37*	30*	118	108
Liquid soaps, other than pkgd. shampoo	1,886*	1,715*	2,907	2,608
Miscellaneous or other soaps (incl. shampoo creams, jellies, pastes, powders)	516	518	85	111
Scouring cleansers (not included in totals)	185,504	191,671	24,845	26,733

* expressed in gallons
** includes all toilet bars, medicated, synthetic, etc.
*** includes washing powder

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Conoco's premium RAMOL® white mineral oils exceed all U.S.P. and N.F. specifications. For the finest in specialty white oils, many formulators insist on Conoco's KREMOL® or STARLIGHT® products.

Conoco SHEROLATUM® petrolatums for the drug and cosmetic industry range in color from the purest white to amber.

Continental skill and quality control result in outstanding quality in all grades. Why not investigate the possibilities of these superior Conoco products in your formulations? We'll be glad to supply you with samples.

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CONOCO **WHITE OILS AND PETROLATUMS**

Canadian Specialties Meeting Oct. 24-26

FORUMS on various aspects of the products of the six divisions composing the association are among the highlights of the third annual meeting of Canadian Manfacturers of Chemical Specialties Assn. Heading the list of speakers for the meeting, which will be held at the Queen Elizabeth Hotel, Montreal, Monday through Wednesday, Oct. 24 to 26, will be Herbert H. Lank, president of DuPont of Canada, Ltd. Mr. Lank, whose subject has not been announced as yet, is the luncheon speaker Oct. 25.

Among the panels that have been scheduled is one on tariffs, the morning of Oct. 25. The panel of tariffs has been programmed for 10:30 a.m., to follow the annual membership meeting. Panel participants thus far committed include J. A. Davis, chairman, Chemical Industry Tariff Commitee, and L. C. Audette, chairman, Canadian Government Tariff Board. A question and answer period will follow the formal discussion portion of the panel.

The morning of the first day of the meeting, Monday, Oct. 24, the board of directors of C.M.C.S. meets. That afternoon the six divisions meet to discuss programs for the next year. The following divisions are scheduled to meet: Aerosols, Pesticides, Waxes and Floor Finishes, Disinfectants and Sanitizers, and Soaps and Detergents.

The concluding feature of the day will be a reception in the association's hospitality suite to which all those attending the convention are invited.

All divisions will meet Tuesday afternoon, Oct. 25. Richard Zdanowski of the research department of Rohm & Haas Co., Philadelphia, will speak at the Forum on Waxes and Floor Finishes. He will present a paper on "Filming Technology of Emulsion Polymers."

An open house period in member's suites begins at 6:00 p.m., Oct. 25.

A panel on marketing, scheduled to begin at 10:00 a.m., will be held the final morning of the meeting, Wednesday, Oct. 26. Forums of the six divisions round out the day's activities, which conclude with two social events, the cocktail party and banquet and floor show.

Geoffrey H. Wood, president of G. H. Wood Co., Toronto, is president of the three year old Canadian trade association of chemical specialties manufacturers. Other officers include R. L. Jones, Colgate-Palmolive, Ltd., and Arthur H. Carter, John Struthers & Co., vice-president; A. Robins, Cartier Chemical Co., secretary, and Gordon S. Lang, Connecticut Chemicals (Canada), Ltd., treasurer.

—★—

Robert Crockett Dies

Robert J. Crockett, 63, vice-president and secretary of Oil Specialties & Refining Co., Brooklyn chemical specialties firm, died in Newark (N. J.) Presbyterian Hospital Aug. 3, after a long illness. Mr. Crockett joined Oil Specialties in 1938, and became vice-president and secretary in 1945. Previously he had been a salesman for a Newark, N. J., Pierce Arrow automobile dealer.

Mr. Crockett had a distinguished military career, dating back to service with the U. S. Army in Mexico prior to World War I, in which he also saw service. He was the first grandfather to be inducted into the armed forces in World War II. Mr. Crockett's military awards included the Legion of Merit, Bronze Star, Presidential Citation and cluster, and the E. T. O. ribbon with five bronze stars.

Robert J. Crockett

Mr. Crockett was active in the National Sanitary Supply Assn. and the Chemical Specialties Manufacturers Assn., as well as many civic organizations. His survivors include his wife; a son; two daughters, and ten grandchildren.

—★—

Handles Naval Stores

The appointment of Paul Roden as New York agent for Taylor Lowenstein & Co., Mobile, Ala., producers of pine oil, rosin and turpentine, was announced recently. Mr. Roden, who will continue to handle natural waxes, will make his offices at 44 Whitehall St., New York. Before establishing his own firm, Mr. Roden was with Mercantile Wax Division of Mercantile Metal & Ore Corp., New York.

—★—

Aerosol Paint Article

"Push-Button Decorating" is the title of a full-color, four page (two double page spreads) article appearing in the September issue of *American Home* magazine. The article, suggested by the publicity agency of the Aerosol Division of Chemical Specialties Manufacturers Assn., is probably the biggest "publicity break" the program has gotten so far. Consisting mainly of full color photographs of furniture and other household furnishings refurbished with aerosol paints, the article states that "Spray-can painting is the newest, neatest, and quickest way to give your home a lift with color." Copies of the issue are being mailed by CSMA to all its members. In its list of credits, *American Home* mentions the Aerosol Division of CSMA.

Ungerer Execs Tour Europe

Kenneth G. Voorhees, Sr., president of Ungerer & Co., New York, accompanied by Ivon Budd, first vice-president, and Kenneth G. Voorhees, Jr., recently returned from a seven-week European trip. Visits were made to many accounts throughout Europe, and indications are that further expansion of Ungerer's overseas operations is imminent.

The group helped to open a new office in London. Ungerer-Vidal Charvet, Paris, Ungerer's French subsidiary, was also visited, and contacts made with customers in that area. A stopover was made at Grasse, France, to investigate the rose crop and other floral products. An extensive tour of Spain was included, where contacts with suppliers were renewed, and crop conditions evaluated.

—★—

Earp Joins New South

C. L. Earp has joined New South Manufacturing Co., Atlanta, Ga., as executive vice president and general sales manager, it was announced last month by John T. Hogan, the firm's president. New South manufactures laundry products, automotive specialties, and industrial cleaners.

C. L. Earp

Prior to joining New South, Mr. Earp had been associated with National Laboratories, Inc., Toledo, O., for 21 years, serving as general manager.

Installation of a new spray tower, now almost completed, will make New South the largest soap manufacturer in the Southeast, according to Mr. Hogan.

—★—

New Quaternary Source

Barlow Chemical Corporation, Ossining, N.Y., recently announced installation of facilities to manufacture quaternary ammonium compounds. For several years the company has made intermediates for quaternaries, but now has broadened its activities to include the basic production of a range of quaternary compounds. A new line of quaternaries will be sold under the "Barquat" tradename.

A national network of distributors has been established by Barlow which includes:

George Mann and Co., Providence, R. I.; Callahan Chemical Co., Camden, N. J.; Ives and Co., Los Angeles, Calif.; Moreland Chemical Co., Spartanburg, S. C.; Amica-Burnett Chemical Co., Jacksonville, Fla.; Great Western Chemical Co., Seattle, Wash.; Textile Chemical Co., Reading Pa.; Wittichen Chemical Co., Birmingham, Ala.; Joseph Turner and Co., Ridgefield, N. J., and Chicago.

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Polymer Emulsions

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To leave films of sparkling clarity, W-63 emulsions are highly translucent and of very fine particle size. For formulation ease, they show excellent compatibility in blends with casein, shellac, waxes, dyes and pigments. W-63 emulsions adhere perfectly to tannery finished leathers – both lacquer and water topped. They level beautifully, too, whether applied by swab or spray. Want samples? Here's the W-63 Series!

NEOCRYL W-63L – Hardest, driest film. Glossy and clear.

NEOCRYL W-63M – Flexible clear film with good adhesion.

NEOCRYL W-63P – Soft, very flexible, maximum adhesion.

NEOCRYL W-63D – Good flexibility with low tack.

NEOCRYL W-63MC – Minimum color for very light colored shoes.

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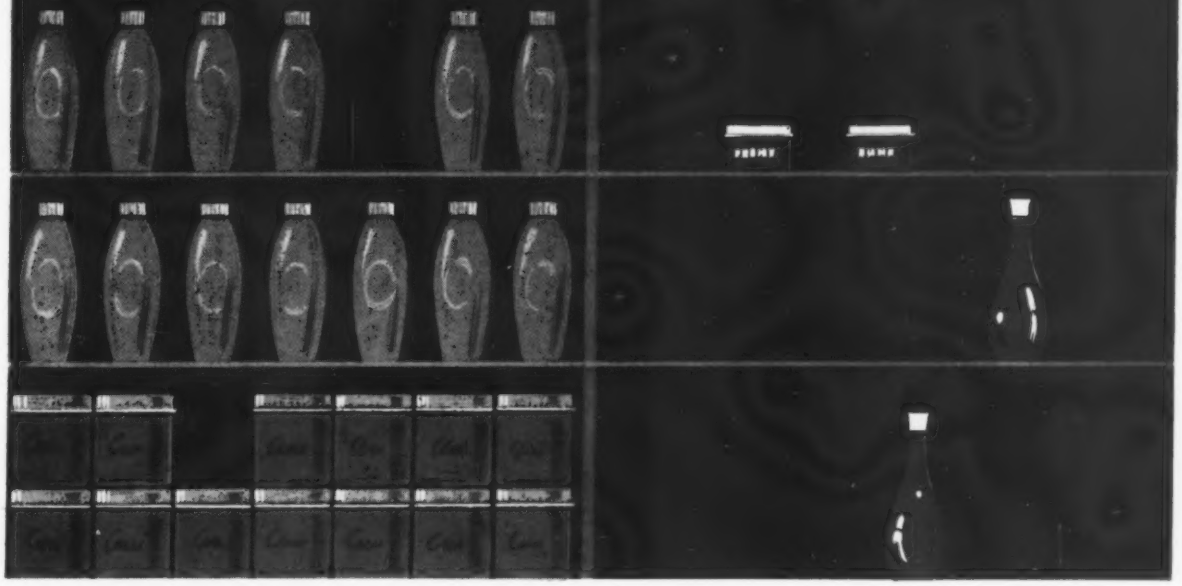

Shelf space is valuable. Your product must move or it's moved out. Once out, it's next to impossible to get it back on the shelf. That's why the extra quality of the Emersol Oleic Acids is so extremely important to your profit picture — especially since they cost no more.

Here's what you buy at no extra cost with Emersol Oleic Acids. You get unsurpassed whiteness which reflects in the eye appeal of your product... invites customers to "reach for me." Outstanding color stability which assures that your product will retain its "buy appeal" through storage, shipping, shelf life, and use. High immunity to oxidation which keeps your product pleasant smelling and delicately colored through many cap removals. And you are assured of these "extras" with every shipment of Emersol Oleic because Emery's strict quality control never wavers.

Find out how you can add "sell" to your product at no extra cost. Request Emeryfacts booklet titled "Emersol Oleic Acids." Write Dept. S-9.

Emery FATTY ACID SALES DEPT., CAREW TOWER, CINCINNATI 2, OHIO ... *a little extra everything except price*

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Witco Buys Sonneborn

Witco Chemical Co., New York, has acquired a 100 per cent interest in privately owned Sonneborn Chemical & Refining Corp. and its subsidiaries. The transaction was announced early this month by Robert I. Wishnick, Witco's chairman, and Rudolf G. Sonneborn, president of Sonneborn.

Witco's products include among others detergents, detergent chemicals, and metallic soaps. Sonneborn makes petroleum sulfonates, white oils, solvents, petrolatums, building product specialties, and a number of other petroleum derived products.

R. G. Sonneborn; Gustave Schindler, vice-president; and Henry Sonneborn III, vice-president and secretary have been elected to Witco's board of directors.

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Marie DuBin Retires

Marie P. DuBin, sales representative of R. M. Hollingshead Corp., Camden, N. J., and one of the few women representatives in the sanitary supplies field, will retire effective Oct. 1. She expects to continue with Hollingshead as a special agent. Mrs. DuBin has been in the industrial division of the company since she entered the field in 1935.

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Nopco Exec Retires

Nopco Chemical Co., Newark, recently announced retirement of G. Daniel Davis, vice-chairman of the board of directors. He continues to be associated with the company in an advisory capacity.

Mr. Davis joined Nopco in 1916 as a shipping clerk, and in total yearly service is the oldest Nopco employee. He was put in charge of the Chicago office in 1920. In 1923 he was elected secretary and director of the company, rising later on to become executive vice-president.

Aerosol Contest

(*From Page* 170)

Hollywood Beach Hotel, Hollywood, Florida, December 5. All entries in the contest will be on display at the CSMA meeting.

Entries in the 1960 Aerosol Contest will close October 15. Entries are open to all manufacturers and marketers, both domestic and foreign. Entrants do not have to be members of CSMA. There are no charges or fees connected with an entry in the contest. Entry blanks may be obtained by writing to CSMA at 50 East 41st St., New York 17. The next meeting of the committee handling the contest will be in connection with the fall meeting of the Board of Governors of CSMA on October 3 at the Dupont Hotel, Wilmington, Del., according to Joseph Tomlinson of General Chemical Division of Allied Chemical, chairman of the committee.

☑ *Mr. Manufacturer*
☑ *Mr. Private Label Packager*

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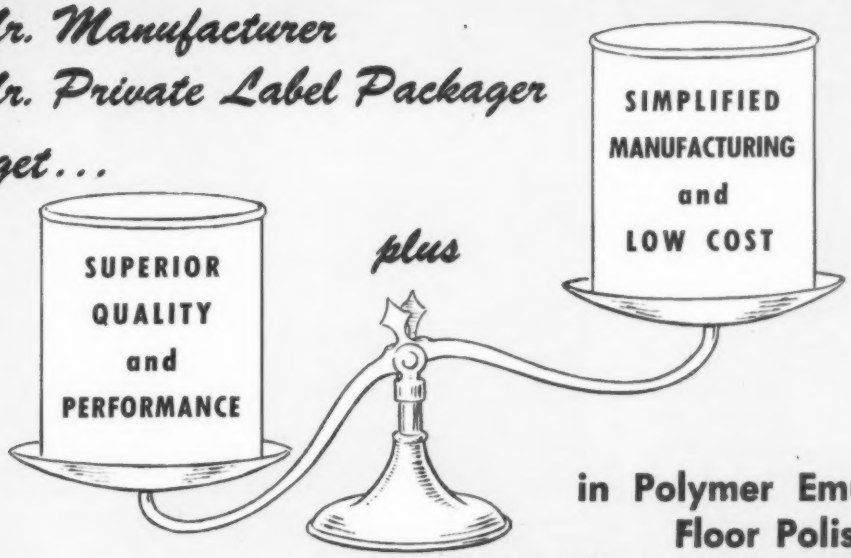

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- Assures finishes of superior quality and performance — all raw material ingredients tailor-made to fit product.
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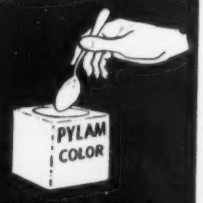

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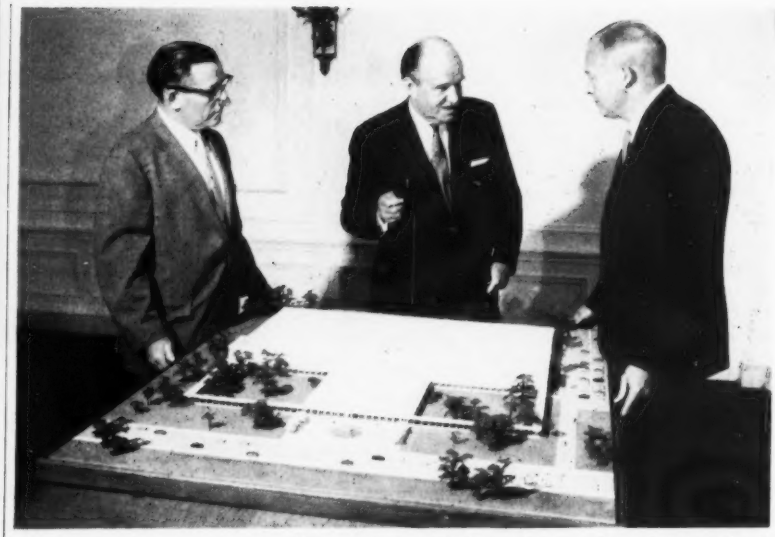

Edward Durell Stone, center, discusses new Yardley plant model with Joseph A. Rosenthal, left, president of Engineers, Inc. and Louis Brennesholtz, vice-president in charge of production of Yardley of London, Inc., New York.

Yardley Builds New Plant

Ground was broken last month for the construction of a three million dollar plant in Totowa, N. J. for Yardley of London, Inc., New York. Scheduled for completion in mid-1961, the plant will house finishing and distributing facilities for Yardley products sold in the United States, according to Philip C. Smith, president of the American subsidiary. Yardley has commissioned Edward Durell Stone to design the building. Mr. Stone's designs include such landmarks as Radio City Music Hall, the Museum of Modern Art in New York City, the U. S. Pavilion at the Brussels World's Fair, and many others.

The 236,000 square foot building will accommodate a 50 per cent increase over Yardley's current facilities located in Union City, N. J. Located on a 30 acre tract off Union Boulevard, the all masonry steel frame building will be faced with white brick. It will be set back from the boulevard by a paved plaza with an oval garden and fountain in the center. Administrative offices located on the first floor, will be flanked by two garden quadrangles, each 200 foot square, with covered colonnades.

Finishing and distributing operations will be housed on the second and third floors of the air conditioned plant. A 5,000 foot indoor garden court will provide a lounge area. An outdoor recreational area is planned as well as a cafeteria, a 250 car parking field, and other services.

Yardley International Research Laboratories will remain in its present location in Union City, N. J.

As Reader Sees It

(*From Page* 51)

David R. Erkel
Kleen King Home Products Co.
15366 E. Proctor Ave.
City of Industry, Calif.

Among the leading producers of metal cans for aerosols are American Can Co., Continental Can Co. and Crown Cork & Seal Co. However, the major problem in developing an effective pressure packaged powder product is not the container, or even the valve, although the latter does have an important bearing on dispensing a powder. Formulation would seem to us to be the crux of the matter. So, unless you are planning to do your own filling, we believe that a reliable contract aerosol packager can supply a workable formula. If, on the other hand, you are determined to do your own filling, then one or more of the companies supplying propellants such as Mr. Husted's firm, General Chemical Division of Allied Chemical Corp., "Freon" Products Division of Du Pont, or Pennsalt Chemicals Corp., may be willing to help out in the formulation of an acrosol dispensed powder product. Ed.

Perfuming Wash Powders

(*From Page* 177)

fresh and neutral, traces of it should remain on the clothes.

When these tests are completed a report should be prepared and the perfumes which have survived the tests should be presented to management. Final selection should be made on the basis of the results of a consumer test in which the perfumed powders are evaluated. For meaningful results the panel should smell only two powder samples at a time. A considerable time interval should be allowed before the next pair of samples is "sniffed." The optimum product is arrived at by a process of elimination.

IV. Quality Control

The perfume is now ordered. The order is filled and the weight of the delivery is checked. A sample is taken and compared on a paper strip with the original sample.

Perfume must never be stored in iron drums, but in aluminium barrels or carboys. If a sediment forms, the product should be decanted and, if necessary, the last few liters should be filtered.

If the color of the perfume is darker than the original sample the delivery should be tested for iron, especially in the case of a low priced product. Rust is the declared enemy of every production man. If a consignment has been spoiled by rusty drums the perfume has to be processed to restore it to an acceptable condition. If odor characteristics have not been impaired this is a comparatively simple procedure.

A perfume shipment should also be tested for traces of copper since even the smallest amounts impair laundering results.

Perfume in storage needs to be watched. A paper strip test should be taken at frequent intervals. Part of the fragrance composition may crystallize out and settle at the bottom, whereby odor characteristics and clinging power of the product may be changed completely. S. Amlacher in *Seifen-Fette Ocle-Wachse*, No. 9, April 27, 1960, pp. 268.9.■

—★—

Breck Special Offers

John H. Breck, Inc., Springfield, Mass., will offer an "RCA Victor" record album valued at $4.98 for $1.00 plus a box top or label from any Breck hair care preparation during the period Oct. 1, 1960 through May 1, 1961.

Concurrently, Breck will make available a consumer combination offer. To be promoted as a "special Breck shampoo trial offer," the unit consists of a four-ounce size Breck shampoo, regularly 60 cents banded together with a new 1½-ounce size Breck shampoo, valued at 30 cents, both for 60 cents. Units are available in the three types of Breck shampoo: dry hair, oily hair, and normal.

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Stephen L. Mayham, executive vice-president of the Toilet Goods Association, addressed the August luncheon of the Cosmetic Industry Buyers & Suppliers Association (CIBS). He discussed current and pending cosmetic legislative action in Washington and its probable effect on our future. With Mr. Mayham (center) are Dallas Roush, Owens-Illinois Glass Co. and Robert Ring, Hewitt Soap Co. and vice-president of CIBS.

Monsanto Builds New Unit

Monsanto Chemical Co., St. Louis, Mo., has begun construction of a new unit due to double its manufacturing capacity for "Santophen" phenolic germicide, it was announced late in August. The new facilities are located at Monsanto, Ill.

Designed for use in household, hospital and industrial disinfectant formulations the material is claimed to have germicidal and fungicidal properties. Market for the compound has more than tripled in the past five years, according to Monsanto. Much of the sales expansion has come since 1958 with a renewed emphasis on antisepsis in clinics and hospitals, the manufacturer reports. This followed evidence of the antibiotics resistance developed by *Staphylococcus aureus* and a concurrent resurgence of demand for phenolic disinfectants.

Monsanto has marketed "Santophen 1" since 1948 to formulators of commercial germicides, soaps, detergents and combination disinfectant/cleaner products.

—★—

Montgomery Joins Verona

Robert W. Montgomery has joined Verona-Pharma Chemical Corp. as sales manager of Verona Aromatics Division, Newark, N. J., it was announced recently. Verona is a producer of aromatic chemicals, perfume specialties, flavors, and related products.

Formerly sales manager of Fritzsche Brothers, Inc., New York, Mr. Montgomery has been active in the aromatics industry since his discharge from the Naval Air Service 14 years ago.

Carl K. Wellenkamp, former sales manager of Verona Aromatics has been granted partial retirement upon his own request. Mr. Wellenkamp has devoted the past 40 years to the essential oil and aromatics industry. Carl Mey-

Robert W. Montgomery

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r. manager of Verona Aromatics expressed the firm's gratitude that Mr. Wellenkamp has agreed to make his only a partial retirement, thus permitting the organization to draw on his exceptional experience.

—★—

Insect Repellents Booklet

"Insect Repellents for Personal Use," circular 592 of the New Jersey State Department of Health, is now available from the state's agricultural experiment station, as announced recently by Roscoe P. Kandle, state commissioner of health.

According to Dr. Kandle: "The booklet tells what a repellent is, how long it will last, how it should be applied, which ones to use, and precautions to take. While it does not give trade names, the reader can check the labels of commercial repellents against the information he has acquired from the booklet, and thus select the brand that will be useful to him."

For copies and additional information, write New Jersey State Department of Health, 129 E. Hanover St., Trenton 25, N. J.

—★—

Dames Joins Emery

Appointment of Robert P. Dames to the New York area office of Emery Industries, Inc., Cincinnati, O., was announced last month by G. W. Boyd, manager of fatty acid sales. Mr. Dames handles Emery's line of fatty acids and hydrogenated glycerides in the New York territory which includes parts of New Jersey, Pennsylvania, New York, and Maryland.

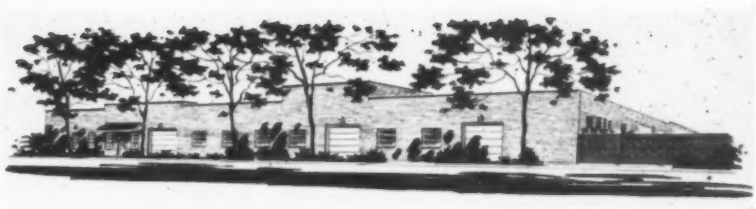
Robert P. Dames

Mr. Dames has been active in chemical sales work in the New York area since 1954. Before joining Emery, he was a sales representative with Lotte Chemical Corp.

—★—

Clarkson Moves to Camden

Clarkson Laboratories, Inc., has moved from its old location in Philadelphia to new headquarters at 1450 Ferry Avenue, Camden, N. J., it was announced last month. The new facilities offer increased space for manufacturing, research and administrative activities. Clarkson makes chemical specialties for institutional use, aviation, metal finishing, and other industries.



New Clarkson Laboratories plant in Camden, N. J.

The firm's western plant at 2655 Ingalls Street, San Francisco, has also been expanded recently.

—★—

Allied to Make Polyethers

Allied Chemical Corp., New York, recently announced that its Solvay Process Division will construct a plant to make polyethers in Baton Rouge, La. Polyethers are used for both rigid and flexible foams. The new plant will make Allied a producer of all major urethane foam components.

National Aniline division will market the polyethers.

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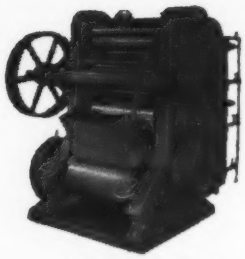

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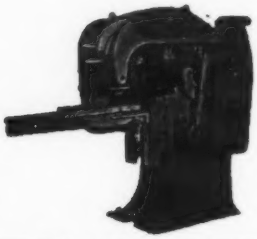

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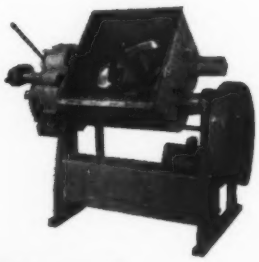

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Sales Manager: Aggressive technically sound chemical compounder wants sales manager experienced in sale of detergents to meat packers, milk plants, metal processing plants. Submit full resume. Salary and bonus arrangement. Address Box 494, c/o *Soap*.

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Organic Chemist: Biophyscist: Ph.D. and 37 years old. 14 years in teaching, academic research and publications. Experience in organic syntheses and use of tracer methodology in the study of organic, biochemical and biophysical mechanisms. Four years consulting in chemical specialties industry. Desires position offering good beginning and future professional and financial structure. Prefer southwest USA. Address Box 508, c/o *Soap*.

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(*Continued on Page 226*)

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Organic Ph.D.: Over 20 years synthesis, development organic chemicals, specialties, waxes, detergents, disinfectants, lotions, skin cleaners, polymers, research direction. Consider partnership, participation, or laboratory direction plus. Address Box 510, c/o *Soap*.

Research Chemist: 15 years experience as research director with leading chemical specialties manufacturer. Research – standard and aerosol formulation, production—costs and purchase of new ingredients, equipment – test panels – experience with complete chemical specialties line—specializing in shoe polishes, leather dressings, waxes, resins, gums and dyes in solvents, emulsion systems. Address Box 497, c/o *Soap*.

Top Notch Experience: Thoroughly diversified experience available in laboratory and sales phases of metal finishing and industrial detergency. Prefer profit sharing with small company interested in growth. Address Box 515, c/o *Soap*.

Research Director: Strong experience household chemical specialties, cosmetics, perfumes, flavors, aerosols. Combines imagination with excellent background organic chemistry, applications research. Technical sales, marketing experience permit complete follow through from idea to successful marketing. Seeks progressive firm that values scientist who can contribute to policy. Address Box 495, c/o *Soap*.

Miscellaneous

Wanted: New or used equipment for making deodorant and wall blocks, also new or used stainless steel steam jacketed mixing tanks. Address Box 513, c/o *Soap*.

Wanted: Do you have an excess copy of "Soaps & Detergents" by Thomssen & McCutcheon among your books? We will pay $10 each for used copies in good condition. Send copies direct to Mac Nair-Dorland Co., 254 W. 31st St., New York 1, N. Y. or write for further information.

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(*Cont'd on Page* 227)

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For Sale: MRM, 6 spout, vacuum liquid filler; Whirlwind portable screw capper; Karl Kiefer, Visco, 7 spout, rotary filler. San-I-Tank, stainless steel, 50 gallons, jacketed, ¼HP, explosion proof agitator stainless steel kettle, 55 gallons, jacketed. Sell us your surplus equipment. Irving Barcan Co., 249-51 Orient Ave., Jersey City 5, New Jersey.

For Sale: Complete file of *Soap & Chemical Specialties* magazines from January 1955 through December 1958. Recent retirement from the industry ends their real service to me. Mr. Paul Date, 690 Freeling Drive, Sarasota, Florida.

AEROSOL MARKET
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Aerosol Golf Tourney

Tom Wyman of Nestle Co., New York, with a low gross score of 74, won the second annual Aerosol Industry Golf Tournament, held Aug. 9 at Winged Foot Country Club, Mamaroneck, N. Y. As this year's winner, Mr. Wyman gains possession of the tournament's trophy for one year. He also receives a smaller replica of the trophy which bears the names of guest winners.

First low net was won by Dick Geib of Clairol, Inc. Other winners included George Spitzer of Carter Products Co., second low net; David Phillipson, Aerosol Techniques, Inc., second low gross; Jack Van Zandt, Helena Rubenstein, third low gross, and Daniel F. Terry, Boyle-Midway Division, third low net.

Don Tuttle of Risdon Manufacturing Co. won low net for members, and Leonard Cannella took low gross honors for members. Harvey White of Puritan Aerosol Corp. had the longest drive, and Dick Bradley of American Can Co. was closest to the pin.

A three-way tie for kickers winner involved Ray Barnett of Revlon, Inc.; Harry Schneider of National Spray Can Filling Corp., and Herman Reinhardt, Jr., of Boyle-Midway.

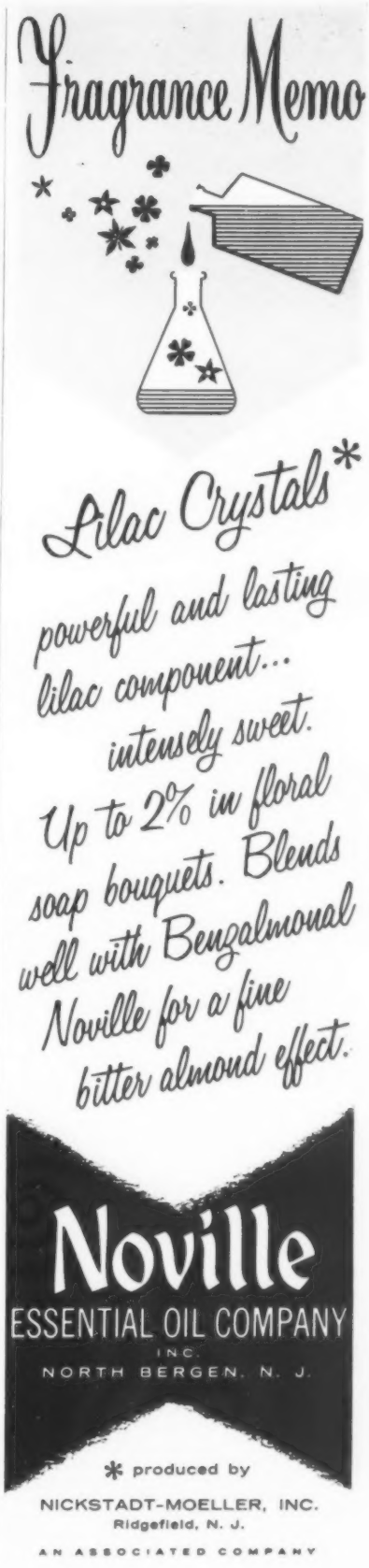
Frank Steckhaus, also Boyle-Midway, "won" high gross.

This marks the sixth aerosol golf tournament. The first four were sponsored by individual companies providing aerosol components. For the past two years a group of suppliers have underwritten the affair. This year 19 companies sponsored the tournament, in which there were close to 100 golfers. About 150 attended dinner.

★

Victor Chemical Ups Two

Victor Chemical Works, division of Stauffer Chemical Co., Chicago, last month announced that Ralph P. Gates has been named director of special products, and Edward H. Callies, Jr., assistant director.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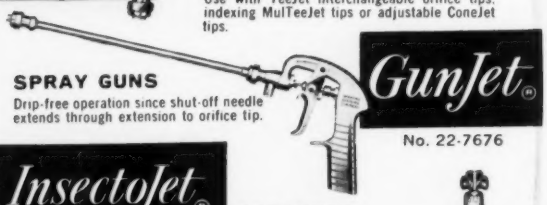

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Velsicol Names Agronomist

Velsicol Chemical Corp., Chicago manufacturer of industrial and agricultural chemicals, recent-

Warren H. Zick

ly announced appointment of Dr. Warren H. Zick as agronomist-herbicide specialist in the company's research and development department.

Dr. Zick has a doctorate from the University of Wisconsin, and was formerly with U. S. Borax Research Corp., Los Angeles, where he served as agronomist, herbicide specialist, and plant nutritionist. His function is to coordinate biological aspects of research and development on new products.

—★—

Lawson Holds New Post

George R. Lawson, general manager of Pennsalt Chemicals Corp's Chemical Specialties Division in Philadelphia has been elected vice-president and general manager and a director of Pennsalt Chemicals of Canada, Ltd., Oakville, Ont. Mr. Lawson's additional responsibilities were announced late last month by William P. Drake, the firm's president.

Pennsalt of Canada, a wholly owned subsidiary of the American firm, continues to be supervised by William B. Billingsley, vice-president and resident manager in Oakville. The Canadian organization makes and markets Pennsalt specialties.

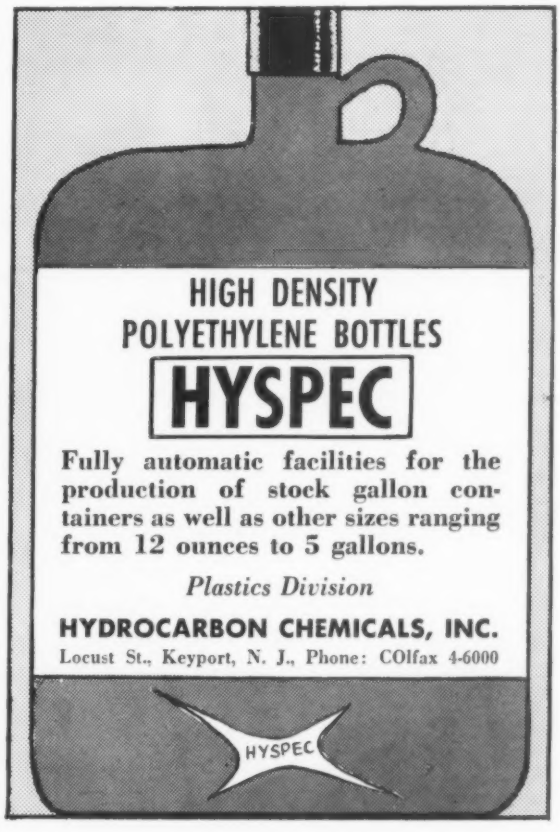
Revlon Operations V-P

Herbert M. Greenspon has been appointed vice-president of operations of Revlon, Inc., New

Herbert M. Greenspon

York, it was announced last month by Charles Revson, president. He is responsible for manufacturing, warehousing, shipping and other planning activities of the company.

Mr. Greenspon joined Revlon in 1957.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COMING MEETINGS

American Chemical Society, 138th national meeting, New York, Sept. 11-16.

American Oil Chemists Society, fall meeting, New Yorker Hotel, New York, Oct. 17-18.

Association of American Soap & Glycerine Producers, 34th annual convention, Waldorf-Astoria Hotel, New York, Jan. 25, 26 and 27, 1961.

Canadian Agricultural Chemicals Association, Britannia Hotel, Lake of Bays, Muskoka, Ont., Sept. 12-14.

Canadian Manufacturers of Chemical Specialties Association, 3rd annual convention, Queen Elizabeth Hotel, Montreal, Oct. 24-26.

Chemical Specialties Manufacturers Association, 47th annual meeting, Hollywood Beach Hotel, Hollywood, Fla., Dec. 3-9.

Chemical Specialties Manufacturers Association, first annual mid-western golf outing, Medinah Country Club, Medinah, Ill., Sept. 20.

Drug, Chemical & Allied Trades Association, 70th annual meeting, Sagamore Hotel, Bolton Landing, N. Y., Sept. 15-18, 1960.

Industrial & Building Sanitation-Maintenance Show and Conference, Sheraton-Cadillac Hotel, Detroit, Oct. 24-27.

National Agricultural Chemicals Association, annual meeting, Del Coronado Hotel, Coronado, Calif., Sept. 27-29.

National Auto Accessory and Parts Exhibit, Las Vegas, Nev., Sept. 12-15.

National Packaging Exposition and Conference, Exposition Center, Chicago, April 10-14, 1961.

National Pest Control Association, annual meeting, Hotel Mayo, Tulsa, Okla., Oct. 17-20.

National Sanitary Supply Assn., 38th anuual convention, Conrad Hilton Hotel, Chicago, April 23-26, 1961.

National Sanitary Supply Association, West Coast meeting, Hotel Ambassador, Los Angeles, Oct. 22-24.

New York Premium Show and Premium Advertising Conference, Hotel Astor, New York, Sept. 12-15.

Packaging Institute, 22nd seminar, Statler Hilton Hotel, New York, Oct. 31, Nov. 1, 2.

Packaging Machinery Manufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Nov. 7-10, 1961.

Society of Cosmetic Chemists, Chicago Chapter, Oct. 11, Nov. 8.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meeting, Roosevelt Hotel, New York, Sept. 13, Oct. 11, Nov. 10; annual meeting and annual dinner, Dec. 8.

Toilet Goods Association, 26th annual meeting, Waldorf-Astoria Hotel, New York, May 9-10-11, 1961.

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tale ends

"THIS country's total consumption of cleaning products is increasing more than twice as fast as the population increase." This, good friends, was a statement by the Board Chairman and the President of America's largest soap manufacturer, P & G, in its annual report to some 64,000 stockholders. To us, it was something in the light of vindication of a stand we have repeatedly taken editorially, the last time in the August issue where we commented on a paper by Dr. Foster Snell and his wife, Dr. Cornelia Snell, before the American Chemical Society. The Snells stated that deteregnt and soap use in America had reached its peak. We disagreed.

* * * * *

As a definite result of the staphylococcus disease which swept through many American hospitals in 1958-59 and a renewed emphasis on the return to old-fashioned phenolic germicides, Monsanto Chemical is doubling its capacity for the production of Santophen 1. The product has more than tripled in sales during the past five years as the synthetic phenolics have continued to grow in importance in the disinfectant market. Hospital dependence on the "wonder drugs" has dwindled as evidence of a growing resistance by staph aureus has become evident.

* * * * *

Broadway Maintenance Corp., big time N. Y. cleaning outfit, phoned us recently to find out who makes a machine that will blow "soap" bubbles in a big way. They plan to have a float in the Labor Day parade and they want it to blow bubbles on the spectators as it goes by. The "soap" bubbles, we assume, epitomize cleanliness which is Broadway's business. Anyway they said it had been done at the last Rose Festival in Pasadena, Calif. with success. We referred them to an outfit that we believe can solve their problem.

* * * * *

Eau de cologne recently celebrated its 250th anniversay at the little North Italian village of Santa Maria Maggiore. Strange it is indeed how eau de cologne has retained its popularity throughout the years. Other odors have come and gone, but it seems that cologne goes on forever. And what with the new aerosol colognes which have become so popular on the American market, the famous odor has had a new resurgence in popularity.

* * * * *

Canadian statistics for detergent-soap production are keeping pace with American output. In fact, proportionately it looks off hand like Canada's detergent use is growing faster than the U. S. In 1958, 195 million pounds of synthetic detergents and 126.6 million pounds of soap were produced. In 1957, it was 174 million pounds of detergents and 129.5 million pounds of soap. This shows a gain of 11 per cent for detergents and a loss of about 2 per cent for soap. This figures out to a per capita consumption in 1958 of about 25 pounds.

* * * * * *

Germicidal soap tissues are now being marketed by a Brooklyn firm. The soap tissues come in a pop-up package and are being suggested for all uses where a germicidal or deodorant soap is needed. The soap contains hexachlorophene. The company which is pushing the new product particularly to physicians, nurses and hospitals, is Fitzer Products, 163 Brighton 11th St., Brooklyn 35, N. Y.

* * * * * *

Bernard R. Freudenthal, president of Chemical Service of Baltimore, Inc., left Baltimore for a trip around the world on August 22. He was accompanied by Mrs. Freudenthal. After spending a few days at the Chemical Service branch office in San Francisco, they took off for Japan. They will also visit Hong Kong, Thailand, India and Italy, returning to Baltimore about the end of September.

* * * * * *

Soaps and detergents accounted for 2.9 per cent of all super market sales in 1959 for a total of $941,000,000, according to Super Market Merchandising. Of course, these are figured at retail prices and as such, we would guess that this represents something close to three billion pounds of detergents and soaps.

* * * * *

Happy ending: David Lowery Zuck, son of Birmingham, Ala., can making tycoon, Gordon Zuck, was married July 23 to Michal Virginia Pierce.

* * * * *

WOW! One billion plastic containers for liquid detergents this year! Yup, that's what Emmet Nixon, sales manager of plastics for Hercules Powder Co. is quoted as predicting in a recent chemical trade magazine article. The New York Times, on the other hand, in a recent feature on plastic bottles, stated that the 1960 output for liquid detergents would be around 400 million units. The Times' story stated that 75 to 80 per cent of liquid detergents now come in plastic bottles.

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Colgate-Palmolive Co. is test marketing its new "Choice" soap in three cities on the West Coast, we are told. Also, Drackett Co., Cincinnati maker of "Dran-o" and other specialties is quietly testing (why do they always test them quietly?) a new polish in the Far West.

G. Hunter Fletcher, mayor of Yorktown, Va., participates in the press preview at the Savoy Hilton Hotel, New York, of "York Town 1781," Shulton's new prestige line of men's toiletries. Shown here (right) George L. Schultz, president of Shulton, introducing Mr. Fletcher (center) who conducted the prize drawing and presentation to winner, Clara Gildemeister, women's editor, of the "Stamford Advocate" (inset). The prize was a trip for two to Yorktown and colonial Williamsburg, Va.